

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2161.—VOL. XLVII.

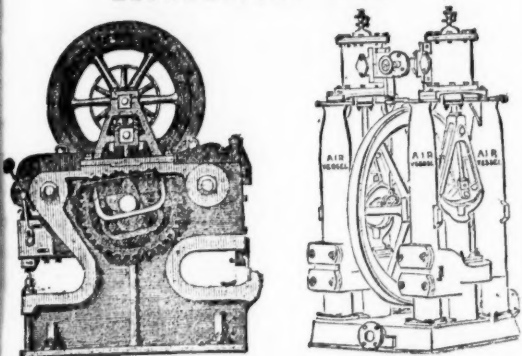
LONDON, SATURDAY, JANUARY 20, 1877.

PRICE (WITH THE JOURNAL) SIXPENCE.
PER ANNUM, BY POST, £1 4s.

JOHN CAMERON'S

SPECIALITIES ARE ALL SIZES OF

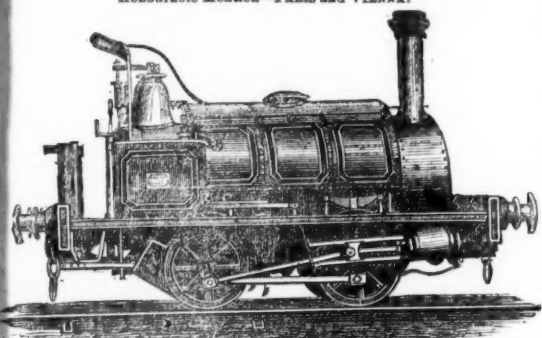
Steam Pumps, Shipbuilders' Tools,
BAR SHEARS.
ESTABLISHED 1852.



OLDFIELD ROAD IRON WORKS,
SALFORD, MANCHESTER.

HENRY HUGHES AND CO.

FALCON WORKS,
LOUGHBOROUGH.
Honourable Mention—PARIS and VIENNA.



LOCOMOTIVE TANK ENGINES,

For COLLIERIES, MINERAL, and CONTRACTORS' RAILWAYS, of the best materials and workmanship, always in progress, from 6 to 14 in. cylinders, four or six wheels coupled, for cash, hire, or deferred payments.

For Excellence
and Practical Success
of Engines



Represented by
Model exhibited by
this Firm.

HARVEY AND CO.
ENGINEERS AND GENERAL MERCHANTS,
HAYLE, CORNWALL,
LONDON OFFICE,—186, GRESHAM HOUSE, E.C.

MANUFACTURERS OF

PUMPING and other LAND ENGINES and MARINE STEAM ENGINES
of the largest and most approved kinds in use, SUGAR MACHINERY,
MILLWORK, MINING MACHINERY, and MACHINERY IN GENERAL.
SHIPBUILDERS IN WOOD AND IRON.

MANUFACTURERS OF

HUSBAND'S PATENT PNEUMATIC STAMPS.

SECONDHAND MINING MACHINERY FOR SALE.

In Good Condition, at Moderate Prices—viz.,

PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES;
STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK of
various sizes and descriptions; and all kinds of MATERIALS required for
MINING PURPOSES.

STANDARD LUBRICATING OILS
COMPANY, LIMITED.

DARK and PALE OILS for MACHINERY, RAILWAY, and MINING
PURPOSES, from TWO SHILLINGS per gallon, and upwards.

AGENTS WANTED.

95, CANNON STREET, LONDON, E.C.

BENNETTS' SAFETY FUSE WORKS,
ROSKEAR, CAMBORNE, CORNWALL.

BLASTING FUSE FOR MINING AND ENGINEERING
PURPOSES.

Suitable for wet or dry ground, and effective in Tropical or Polar Climates.

W. BENNETTS, having had many years experience as chief engineer with
Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety
his own manufacture, of best quality, and at moderate prices.
Price Lists and Sample Cards may be had on application at the above address.
LONDON OFFICE,—H. HUGHES, Esq., 95, GRACECHURCH STREET.



PARIS, 1875.
BRONZE MEDAL, 1867.



ORDER OF THE CROWN OF PRUSSIA.



FALMOUTH, 1867.
SILVER MEDAL, 1867.

A DIPLOMA—HIGHEST OF ALL AWARDS—given by the
Geographical Congress, Paris, 1875—M. Favre, Contractor, having
exhibited the McKean Drill alone as the MODEL BORING MACHINE
for the ST. GOTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland
Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where

THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecutive
weeks, ending February 7, was 24'90, 27'60, 24'80, 26'10,
28'30, 27'10, 28'40, 28'70 metres. Total advance of south heading
during January was 121'30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tunnel,
the McKean Rock Drill continued to work until the pressure
was reduced to one-half atmosphere (7½ lbs.), showing
almost the entire motive force to be available for the blow
against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these
Machines for the SEVERN TUNNEL; the LONDON AND
NORTH-WESTERN RAILWAY for the FESTINIOG TUNNEL;
and the BRITISH GOVERNMENT for several Public
Works. A considerable number of Mining Companies are now
using them. Shafts and Galleries are driven at from three to
six times the speed of hand labour, according to the size and
number of machines employed, and with important saving in
cost. The ratio of advantage over hand labour is greatest
where the rock is hardest.

These Machines possess many advantages, which give them
a value unapproached by any other system of Boring Machine.

THE MCKEAN ROCK DRILL IS ATTAINING GENERAL
USE THROUGHOUT THE WORLD FOR MINING, TUN-
NELLING, QUARRYING, AND SUB-MARINE BORING.

The MCKEAN ROCK DRILLS are the most powerful—the
most portable—the most durable—the most compact—of the
best mechanical device. They contain the fewest parts—have
no weak parts—act without shock upon any of the operating
parts—work with a lower pressure than any other Rock
Drill—may be worked at a higher pressure than any other
—may be run with safety to FIFTEEN HUNDRED STROKES
PER MINUTE—do not require a mechanic to work them—are
the smallest, shortest, and lightest of all machines—will give
the longest feed without change of tool—work with long or
short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or
open work. Their working parts are best protected against
grit and accidents. The various methods of mounting them
are the most efficient.

N.B.—Correspondents should state particulars as to
character of work in hand in writing us for information,
on receipt of which a special definite answer, with
reference to our full illustrated catalogue, will be sent.

PORTABLE BOILERS, AIR COMPRESSORS, BORING STEEL,
IRON, AND FLEXIBLE TUBING.

The McKean Drill may be seen in operation daily in London.

MCKEAN AND CO.

ENGINEERS.

OFFICES,

42 BOROUGH ROAD, LONDON, S.E.; and
5, RUE SCRIBE, PARIS.

MANUFACTURED FOR MCKEAN AND CO. BY
MESSRS. P. AND W. MACLELLAN, "CLUTHA IRONWORKS,"
GLASGOW.

The Warsop Rock Drill

(Involving an entirely new principle in Mechanical Boring)

Requires only 20 lbs. steam or air-pressure.
Has only two moving parts—thus ensuring freedom from de-
rangement, and is absolutely self-feeding.

Is excessively light, and can be carried by one man, who can
with the No. 1 size (weighing only 35 lbs.) drill 40 holes
¾ in. diameter and 1½ in. deep per hour, in the hardest Aber-
deen granite for splitting purposes.

WARSOP AND HILL,

HYDRAULIC AND GENERAL ENGINEERS.
NOTTINGHAM.

STEAM and HYDRAULIC WINDING and PUMPING ENGINES
of all kinds.

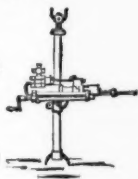
DUNN'S ROCK DRILL,

AND

AIR COMPRESSORS.



DRIVING BED ROCK
TUNNELS, SINKING
SHAFTS, AND PERFORMING
OPEN FIELD OPERATIONS,
IS THE
CHEAPEST, SIMPLEST,
STRONGEST, & MOST EFFECTIVE
DRILL IN THE WORLD.



OFFICE,—193, GOSWELL ROAD

(W. W. DUNN AND CO.),

LONDON, E.C.

THE

PATENT SELF-ACTING MINERAL DRESSING MACHINE COMPANY

(LIMITED).

T. CURRIE GREGORY, C.E., F.G.S.

OFFICES,—GLASGOW: 150, ST. VINCENT STREET.

LONDON: 85, GRACECHURCH STREET, E.C.

IMPORTANT NOTICE TO MINE PROPRIETORS.

MR. GEORGE GREEN, ENGINEER, ABERYSTWTH,
SUPPLIES MACHINES under the above Company's Patents for
DRESSING all METALLIC ORES. Dressing-floors having these Machines pos-
sess the following advantages:—

- 1.—THEY ARE CHEAPER THAN ANY OTHER KIND IN FIRST OUTLAY.
- 2.—ONLY ABOUT ONE-FOURTH OF THE SPACE USUALLY OCCUPIED
BY DRESSING-FLOORS IS REQUIRED.
- 3.—FROM 60 TO 70 PER CENT. OF THE LABOUR IN DRESSING, AND
FROM 5 TO 10 PER CENT. OF ORE OTHERWISE LOST, IS SAVED.
- 4.—THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN
FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom
and abroad—viz.,

The Greenside Mines, Patterdale, Cumberland; London Lead Company's Mines
Darlington, Colberry, Nanthead, and Pollyhope; the Stonecroft and Greyside
Mines, Hexham, Northumberland; Wanlockhead Mines, Abington, Scotland (the
Duke of Buccleuch's); Bewick Partners, Haydon Bridge; the Old Duren, Esgrair-
mwyn, and Ystumtuen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines,
Darlington; also Mr. Sewell, for Argenteiferous Copper Mines, Peru; the Brats-
berg Copper Mines, Norway, and Mines in Italy, Germany, United States of
America, and Australia, from all of whom certificates of the complete efficiency of
the system can be had.

WASTE HEAPS, consisting of refuse chatts and skimpings of a
former washing, containing a mixture of lead, blende, and sulphur,
DRESSED TO A PROFIT.

Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton-
in-Teasdale, by Darlington, writing on the 20th March, 1876, says—"The yearly
profit on our Nanthead waste heaps amounted last year to £600, besides the ma-
chinery being occupied for some months in dressing ore-stuff from the mines. Of
course, if it had been wholly engaged in dressing wastes our returns would have
been greater; but it is giving us every satisfaction, and bringing the waste heaps
into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines,
Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much
pleasure in stating that a full and superior set of your Ore Dressing Machinery has
been at work at these mines for fully a month, and each day as the moving parts
become smoother, and those in charge understand the working of the machinery
better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply,
and satisfactorily than by any other method."

Mr. BAINBRIDGE, speaking of machinery supplied Colberry Mines,
says—"Your machinery saves fully one-half on old wages, and vastly more on the
wages we have now to pay. Over and above the saving in cost is the saving in ore,
which is a much short of 10 per cent."

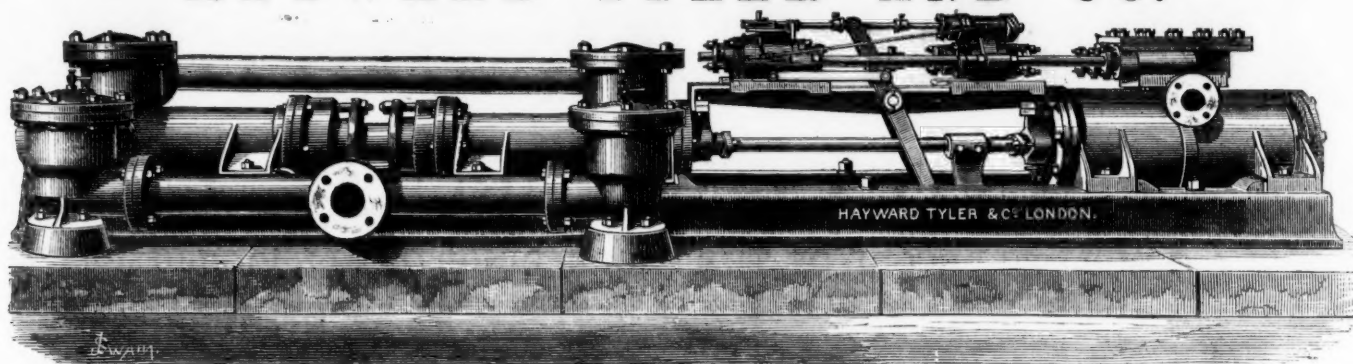
GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The
separation which they make is complete."

Mr. MONTAGUE BEALE says—"It will separate ore, however close
the mechanical mixture, in such a way as no other machines can do."

Mr. C. DODSWORTH says—"It is the very best for the purpose
and will do for any kind of metallic ores—the very thing so long needed for dress-
ing floors."

Drawings, specifications, and estimates will be forwarded on application to—
GEORGE GREEN, M.E., ABERYSTWTH SOUTH WALES.

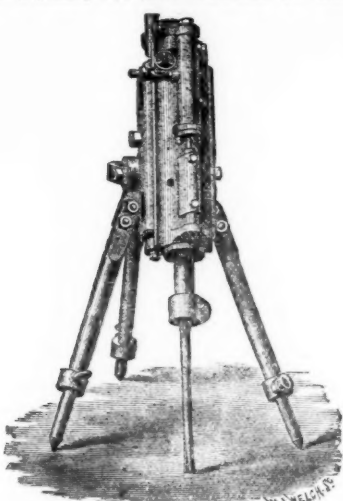
COPE AND MAXWELL'S PATENT
SELF-REGULATING PUMPING ENGINE.
 SOLE MAKERS:
HAYWARD TYLER AND CO.



As Exhibited at the Royal Agricultural Society's Show at Birmingham, 1876.

SPECIALLY ADAPTED TO HIGH LIFTS IN COAL AND OTHER MINES.
WATER-WORKS, where great economy is required, in which case the steam is expanded into a second cylinder and condensed.
 PRICES AND PARTICULARS ON APPLICATION.
WHITECROSS STREET, LONDON, E.C.

THE
"Champion" Rock Borer,
 For Tunnels, Mines, Quarries,
 HARBOUR WORKS, CUTTING BLOCKS OF GRANITE, &c.



STANDS POSITIVELY UNRIVALLED FOR

- | | |
|----------------|-------------------|
| 1.—EFFICIENCY. | 5.—ADJUSTABILITY. |
| 2.—ECONOMY. | 6.—PORTABILITY. |
| 3.—SIMPLICITY. | 7.—COMPACTNESS. |
| 4.—DURABILITY. | 8.—STRENGTH. |

Intending purchasers can satisfy themselves by personally inspecting "CHAMPION" Rock Borers at work in London, or where they are in actual operation, that the advantages claimed are not over-estimated.

AIR COMPRESSING MACHINERY
 of the SIMPLEST and BEST CONSTRUCTION.
COMBINED AIR-COMPRESSORS
 AND
WATER-PRESSURE ENGINES
 Giving most excellent results.

ULLATHORNE AND CO.,
 Mechanical and Consulting Engineers,
 23, QUEEN VICTORIA STREET, LONDON, E.C.

ALEXR. WILSON & CO.,
 VAUXHALL IRONWORKS,
 LONDON, S.W.,

MANUFACTURERS OF

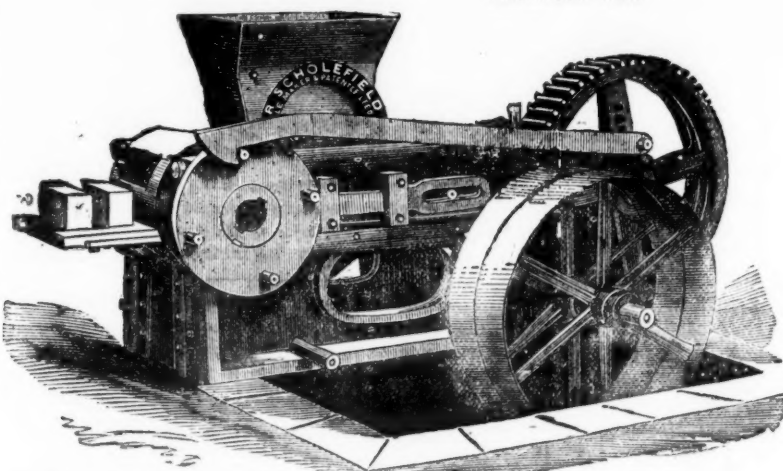
THE VAUXHALL DONKEY PUMPS.
 THE EXCELSIOR DIRECT-ACTING PUMPS.
 HIGH-PRESSURE SCREW ENGINES.
 COMPOUND SCREWS ENGINES.
 PATENT SURFACE CONDENSING ENGINES.
 PATENT PADDLE ENGINES.
 HOISTING MACHINERY.



ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

Just published, Free Edition.
GUIDE TO HEALTH; or, ADVICE AND INSTRUCTIONS FOR THE CURE OF NERVOUS DEBILITY.—A New Medical Work on the Treatment of Local Debility, Consumption, Loss of Memory, Physical Depression, Indigestion, and all diseases resulting from loss of nerve power. Illustrated with cases and testimonials. Sent free for two stamps.—Dr. SMITH will, for the benefit of country patients, on receiving a description of their case, send a confidential letter of advice.
 Address, Dr. H. SMITH, 8, Barton-crescent London, W.C.

R. SCHOLEFIELD'S
LATEST PATENT BRICK-MAKING MACHINE.
 PATENTED 1873.



production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	...	8 0
1 man grinding, 4s. 6d. per day	...	4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	...	2 0
1 boy greasing, 1s. 6d. per day	...	1 6
1 engine-man, 5s. per day	...	5 0
1 man wheeling bricks from machine to kiln, 4s. per day	...	4 0

Total cost of making 10,000 pressed bricks ... £15 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging. As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.
SCHOLEFIELD'S ENGINEERING & PATENT BRICK MACHINE WORKS
KIRKSTAL ROAD, LEEDS.

CLAYTON AND SHUTTLEWORTH'S
NEW CATALOGUE, No. 76.
 With Revised List of Prices of
PORTABLE ENGINES & THRASHING MACHINES

WITH OR WITHOUT PATENT COMBINED GUARD AND FEEDER.

TRACTION ENGINES.
 STRAW ELEVATORS AND STACKERS.
 HORIZONTAL FIXED ENGINES.
 CIRCULAR SAWS.
 CORN MILLS, &c., &c.

Can be obtained, post free, by application to

CLAYTON AND SHUTTLEWORTH, LINCOLN;
 78, LOMBARD STREET, LONDON; and 35 and 37, TABLET STREET, LIVERPOOL.

COAL-CUTTING MACHINERY.

W. and S. FIRTH undertake to CUT, economically, the hardest CANNEL, ANTHRACITE, SHALE, or ORDINARY COAL, ANY DEPTH, UP TO FIVE FEET.

Apply,—**16, YORK PLACE, LEEDS.**

JEWELS, PLATE, AND VALUABLES

May be DEPOSITED for SAFE CUSTODY in the Fire and Burglar-proof Vaults of the

NATIONAL SAFE DEPOSIT COMPANY,
 LIMITED.

Apply to H. WEST, Esq., Manager, 1, Queen Victoria-street, Mansion House.

THE COM

SIR.—Under
 plement to la
 article on "Th
 to other articl
 not surprised
 metals, and o
 have fallen in
 attempting to
 light of the B
 the value ther

If the writ
 could not hav
 which he adu
 marks we qu
 remarks, base
 ductions are c

LEAD.—As to
 placing lead fir
 them all throug
 imports were val
 members, about
 more than 1874.
 In 1875, a de
 entered for home
 Tin.—Tin in bl
 regulus was im
 1,148,164, a de
 More than one-
 was re-shipped to
 figures disprove
 continues to be m
 are glutted with
 Zinc.—As in
 also, there were
 entered was for
 QUICKSILVER,
 silver were wo
 68,374, last ye
 year before. Th
 decline are obs

In future at
 spondent will
 annual review
 poraries have
 sake of those
 xious to enlig
 foregoing rem

COTTON

SIR.—That
 per in blastin
 dred of lives
 last few years
 powder, and
 close of 1875,
 using the ram
 and most othe
 ties on a large
 currences have
 they are know
 anything to d
 wages for the
 and pick. So
 there is scarc
 taken into the
 months since
 district names
 to be paid for
 labour of the
 time than the
 larger daily o
 would be far m
 the wedge por

Mineowners
 their legal res
 those they em
 of those who
 where powde
 steadiest of t
 care, explosio
 invention, bro
 Dineen, Son,
 Blasting Pow
 ter, from whic
 or boy, can be
 tested in a pi
 West Riding,
 proving that t

With respect
 it may be sai
 brought in con
 to a confined
 fumes which
 and p tent gu
 are not used i
 they are. Dy
 have been los
 ably as it wa
 poisonous fum
 have headache
 railway comp
 objection to it

The late-t
 pears to have
 of the future.
 ceptible arisin
 it. In strengt
 properties, wh
 is not affecte
 up into cartri
 be required.
 explodes in w

By compar
 etituents, it w
 surpasses the
 furious to the
 cotton has to
 for military
 pose of preve
 and also from
 dinary blastin
 other gases, c
 rapidly.

Dynamite c
 of pulverised
 has to be mix
 ther, when it
 ordinary purp

The Tonite,
 crushed to th
 by being subj
 is brought to
 carbonate of
 nitrogen com
 fumes, so diff
 of ammonia, r
 The water in
 this operation
 trial is then

Original Correspondence.

THE COMMERCE OF THE SUPERIOR METALS IN 1876.

SIR,—Under the heading of Original Correspondence, in the Supplement to last week's Journal, our attention has been drawn to an article on "The Commerce of the Superior Metals in 1876," and also to other articles on the same subject in previous issues. We are not surprised that anyone totally ignorant of the real commerce in metals, and only with the Board of Trade Returns before him, should have fallen into serious blunders; but we are surprised that anyone attempting to discuss the supply and demand of any article by the light of the Board of Trade Returns should not have discovered that the value therein given is a very uncertain test.

If the writer of the articles referred to had realised this fact he could not have fallen into such errors, and much of the obscurity which he admits would have been dispelled. To justify these remarks we quote from your columns, and in juxtaposition add our remarks, based on the Board of Trade Returns, to show that his deductions are quite fallacious:—

LEAD.—As to the superior metals, placing lead first, as the most steady of them all throughout the year 1876, our imports were valued at 1,750,000 round numbers, about an average and rather more than 1874, but over 54,000, less than in 1875. All the lead received was sent for home consumption.

TIN.—Tin in blocks, bars, or slabs, and regulus was imported at the cost of 1,148,164, a decline of over 300,000. More than one-third of all we received was re-shipped to foreign ports. These figures disprove the assertion which still continues to be made that our markets are glutted with foreign tin.

ZINC.—As in the case of lead so in zinc, there were no re-exports; all that entered was for home consumption.

QUICKSILVER.—The imports of quicksilver were worth 369,782, against 408,374 last year, and 841,208, the year before. The causes of this rapid decline are obscure.

In future attempts to "supply an omission" we trust your correspondent will avail himself of your own weekly reports and the annual reviews of the Metal Trade, which you and your contemporaries have so copiously copied into their columns; but, for the sake of those "industrial classes" whom he professes himself anxious to enlighten, we would crave space in your next issue for the foregoing remarks.—*London, Jan. 16.* FRENCH AND SMITH.

COTTON POWDER, COMMONLY KNOWN AS TONITE, OR SAFETY BLASTING POWDER.

SIR,—That gunpowder in mines has not only been a source of danger in blasting operations, but the direct cause of the loss of hundreds of lives, we have only to look at the colliery records of the last few years. At the Oaks 360 lives were sacrificed by the use of powder, and at the Swaith Main Colliery, near Barnsley, at the close of 1875, there was another terrible loss of life, the result of using the same material. In Lancashire, Staffordshire, Derbyshire, and most other parts of the kingdom where coal is worked, fatalities on a large scale have attended the use of powder, and these occurrences have had such a deterrent influence on miners, reckless as they are known to be, that at many mines they have refused to have anything to do with it, preferring to sacrifice a portion of their wages for the greater safety they are ensured by using the wedge and pick. So much has this been the case that at the present time there is scarcely a colliery in South Yorkshire where powder is taken into the workings by the men, and it is little more than four months since that the hands at four of the largest collieries in the district named were on strike on the powder question and the wages to be paid for wedging. Powder, however, not only lightens the labour of the miner, but brings down a much larger fall of coal at a time than the wedge will—and, of course, by it there is a much larger daily output. Therefore, if powder could be safely used it would be far more beneficial to the workman and the employer than the wedge possibly can be.

Mineowners, aware that they are morally bound, to say nothing of their legal responsibility, to do all they can to protect the lives of those they employ, are now averse to placing explosives in the hands of those who may carelessly use them, and take every precaution where powder is now used to see that the most experienced and steadiest of the men have the handling of it; but, even with all this care, explosions have and will take place. But by a new patented invention, brought out in the West Riding of Yorkshire by Messrs. Dineen, Son, and Co., of Leeds, known as the "Tonite, or Safety Blasting Powder," we have an explosive of a very powerful character, from which no danger need be apprehended, for no person, man or boy, can be injured by using it. Some few days since it was fully tested in a pit belonging to about the largest colliery firm in the West Riding, and the result was in the highest degree satisfactory, proving that the new explosive is quite harmless in a colliery.

With respect to ordinary explosives that are now extensively used, it may be said that ordinary blasting-powder will explode when brought in contact with a fire or a light of any kind, and when fired in a confined place the men have to inhale the unhealthy sulphurous fumes which must ultimately tell on the constitution. Gun-cotton and p-tent gunpowder are not favourably received, and we believe are not used in mines in this country, or to a very limited extent if they are. Dynamite is a very powerful explosive, but many lives have been lost by it, and it is, consequently, not received so favourably as it was formerly. When used in confined places it leaves poisonous fumes, which leads those who are within its influence to have headaches often for hours, whilst from its dangerous nature railway companies refuse to carry it, which in itself is a very serious objection to its adoption.

The late invention, "Tonite, or Safety Blasting Powder," appears to have all the elements likely to constitute it the explosive of the future. It is free from smoke and smell, the only smoke perceptible arising from the fuse used with the detonator to explode it. In strength it is equal to dynamite, with none of its dangerous properties, whilst it needs no preparation nor softening, so that it is not affected by climate, and is always ready for use. It is made up into cartridges of from 1 oz. to 1 lb., or to whatever weight may be required. It is very valuable in hard rock or wet ground, as it explodes in water, the cartridges being waterproof.

By comparing the different explosives as regards their constituents, it will at once be seen that the Tonite or blasting-powder surpasses the others for strength and safety, and is the least injurious to the health of those working with or near to it. Gun-cotton has to be stored—for it is generally, or almost entirely, used for military and naval purposes—in a wet condition, for the purpose of preventing chemical decomposition (to which it is liable), and also from possible explosion by friction and rough usage. Ordinary blasting-powder is composed of saltpetre for the oxygen and other gases, charcoal for heat, and sulphur to cause it to ignite rapidly.

Dynamite contains 75 per cent. of nitro-glycerine, and 25 per cent. of pulverised earth. Nitro-glycerine, being a dangerous explosive, has to be mixed with earth, which, however, hardens in cold weather, when it has to be softened before it is fit for using for any ordinary purpose.

The Tonite, or safety blasting-powder, is made of cotton, which is crushed to the consistency of flour meal, and is thoroughly purified by being subjected to strong agitation by means of an air-blast; it is brought to a boiling point by means of a jet of steam. A dose of carbonate of ammonia is thrown into the vat, when all the unstable nitrogen compounds are destroyed by the temperature, and the nitric fumes, so difficult of extraction by the old process, are, by the aid of ammonia, reduced into their simple elements—nitrogen and water. The water in the vat from a colourless state becomes a dark brown. This operation takes about three hours, and when finished the material is then quite safe. Nitrate of baryta has some properties

which render it especially suited for nitrating the raw material—it is scarcely soluble in cold water, so that when the charge dries it does not separate and destroy the shape of the cartridge; it also contains the largest amount of oxygen under the same volume, so that with the fineness of the raw material and density of baryta the charges of the tonite, or safety blasting powder, can be made to density 1.500. This is the secret, and means intense local action. Dynamite can be exploded with 7 grains of fulminate of mercury, but it takes at least 15 grains to explode the tonite, or safety blasting-powder. If we then take into account the danger from inflammation we find that dynamite and Abel's gun-cotton, when dry, will burn at the rate of 1 in. in length per second, whilst the safety blasting powder, owing to its composition and density, takes fully five seconds to burn the same length of cartridge.

From the above facts it certainly appears as if the tonite, or safety blasting-powder, is about the safest explosive yet brought under the notice of the public, whilst the cartridges in their permanent state are really no more than brightly burning torches, which may be held burning in the hand without danger of explosion.

We understand that so great is the demand for the new explosive that the works are now kept fully going day and night, one firm having used at the rate of 20000 lb. worth of the powder per year without a single accident. It may be said that tonite is invaluable in shafts and tunnels, less boreholes being required by its use, whilst it can be tampered with water, and the workmen can enter at once the charge is fired. It also appears to be particularly adapted for colliery purposes, and from its undoubted safety we have very little doubt but what it will be used in pits where the coal is now brought down by the wedge. We hope before long to give an account of what it has actually done in collieries where it is now being daily used.—*Sheffield.* MINER.

ARMOUR-PLATES AND HEAVY GUNS.

SIR,—From the statement in last week's Journal it would appear that heavy guns have still the mastery, but would not this be reversed if the plates were of the new metal—manganese bronze? From the tests made last year it was shown to be very much superior to any other metal for armour plating. Can any of your correspondents give information to the numerous readers of the Journal if it is likely soon to be brought into general use? It is much to be desired that the various uses of this metal should become generally known and extensively used, as it would give great impetus to mining in Cornwall and Devonshire.

Devon, Jan. 15.

SOUTH AUSTRALIA.

SIR,—I have only time for a very brief letter by this mail, but some important news to communicate. A few days ago two men came to Adelaide with some specimens of coal which they stated they had discovered near Coffin's Bay, on the western shores of the Port Lincoln district. They gave no information until they had secured a lease of the land from the Government, and (I believe) also lodged an application for the reward—20000. Their account of the discovery is as follows:—They sunk 14 ft. and struck lignite, which proved to be 4 ft. thick; below this they came on a sandy kind of carboniferous rock, and struck a bed of shale several feet thick 14 in thickness; below that more carboniferous rock containing fossils, and at a depth of 84 ft. they struck a seam of coal. The specimens are satisfactory, and I see no reason to doubt the fact of their having come from the locality named. A party has gone over in a small steamer to inspect and report, but cannot be back until after this mail leaves. If the discovery prove what we hope its benefit to the colony is difficult to over estimate. We have millions of tons of first-class iron ores, to say nothing of our copper and other metals.

Our Government are about calling for tenders for the construction of nearly 400 miles of railway. The most important line is one from Port Augusta into the great mineral districts of the Far North, 214 miles in length. Since my last letter I have received some valuable information from that quarter. An old Government surveyor told me that the richest copper mines of the North were within from 20 to 50 miles of the proposed terminus, and this statement has been confirmed by two or three practical miners who know that part of the country. The little controversy we have had here has brought out a great deal of valuable evidence, fully confirming all that has been said of the mineral wealth of our Far North. My time is up, so I must refer you to the Adelaide papers for news of mining generally. The Burra is on the eve of a great improvement.

Adelaide, Dec. 2.

CORRESPONDENT.

FLAGSTAFF MINE.

SIR,—I observe the price of Flagstaff shares has recently risen from 10s. to 40. There being 30,000 shares, the market price of the mines becomes 120,000. Under these circumstances, there should be no difficulty in raising the required amount to prevent the company being wound-up by pressing creditors, which, according to the circular just issued by the board, is imminent. It behoves the shareholders to rescue their property, and to take up debentures without delay—20000, or more seems to be required for the board in London, 10,000 for working expenses, and most probably 10,000 for new machinery—say 25,000, in all, which at 10 per cent. would only be a charge of 25000 a-year on a property calculated by that eminent geologist Prof. Vincent to produce some 40,000, or 50,000 a-year. The pecuniary crisis does not admit of delay. Let shareholders come forward at once and rescue their fine property from collapse, and so recoup themselves for their loss of dividends during the last three years.—*Jan. 17.* A SHAREHOLDER.

THE RICHMOND COMPANY—MESSRS. F. W. MANSELL AND CO.

SIR,—With that simplicity which is my wont, I some time since purchased Richmond shares at 9s. 15s. per share. With that unfeigned certainty accompanying all such operations (at least as far as I am concerned) the quotation has day by day slowly but surely declined. My broker knew not the cause, replying to my enquiry in the usual terms "that there have been more sellers than buyers, and that prices are regulated by supply and demand." However conclusive such information may be to brokers, it in no way accounted for the continuous selling taking place. And none of the officials—as is not unusually the case upon the receipt of unfavourable news—knew anything as to the cause; on the contrary, all "their information was of the most satisfactory character." Thus matters went on until the price had reached something like 7s., when a "flood of light" was introduced by the circulation of the following:—

NOTICE TO CLIENTS ONLY.

RICHMOND CONSOLIDATED MINING COMPANY (LIMITED).
The following announcement appeared in the *Eureka Sentinel*, of Dec. 20, 1876:—"Another Protest: The K. K. Mine yesterday commenced proceedings to prevent the Richmond from obtaining a patent to certain mining ground applied for by the latter. The suit is of the same character as that brought by the Eureka Consolidated." From the information we obtained when at the mines in September last, we fully expected this question would have been amicably adjusted, especially as the deputy Chairman of the K. K. Mine is J. J. Corrigan, Esq., who until recently sat at the Richmond board as the representative of the American Corporation. As the only firm of brokers who, at the formation of the Richmond Company, publicly recommended its shares, many clients are still largely interested in the undertaking, and justly to them we advise the above announcement as soon as it comes to our own knowledge. While reserving our opinion, we sincerely hope the difficulty will be less serious than indicated.

F. W. MANSELL and Co., Sworn Stock and Share Brokers.
Palmerston Buildings, Old Broad street, London, Jan. 15.

Now, as far as I am aware, it is not the business of Messrs. F. W. Mansell and Co. to keep the Richmond shareholders informed of the position and prospects of their property, but it is manifestly the imperative duty of our heavily-paid board of directors, designated in some quarters "trustees," whose functions are clear and defined.

Apart from the commencement of litigation, which is bad enough, Messrs. Mansell and Co. tell us that a "Mr. Corrigan (the deputy-chairman of the K. K. Mine) sat recently at the Richmond board as the representative of the American Corporation." What American Corporation? Is this the same Mr. Corrigan who, in the dispute with the Eureka Consolidated Mine, was instrumental in bringing about a settlement, which cost the company 30,000? If Mr. Corrigan is now our enemy in this threatened litigation, what are our prospects?

Shareholders have a serious complaint against the directors. Why are we not kept as fully advised of unfavourable as we are of favourable intelligence? We do not pay Messrs. Mansell and Co. to give us information; we do the directors, and yet left helplessly in the dark.—*Jan. 16.* AUDI ALTERAM PARTEM.

GOLD MINING IN CALIFORNIA.

SIR,—I shall be glad if any of your readers of the Journal can give me any information, and as soon as possible, in reference to the use of the water-jet in hydraulic mining in the State of California. Or, if they cannot give such information from personal knowledge, will they give the names of any persons from whom such information could be got? The titles of any books in which it is described, giving author and publisher's name and price will greatly oblige.
St. Austell, Jan. 12. WEISSWASSER.

NEWLY DISCOVERED GOLD DIGGINGS IN CHILI.

SIR,—I enclose a printed paragraph from the newspaper—the *Patria*—published in Valparaiso, on the recent discovery of a new gold field on the property of Dr. Tomas Urmeneta, the rich and well known owner of copper mines, and smelting works in the province of Coquimbo. The gold was found accidentally while boring for an artesian well on his estate near Limache, 20 miles from Valparaiso. I am rather busy to-day, and the mail is off in an hour, so I have requested my brother—A. Sewell, of London—to translate the paragraph and forward it to you.
Valparaiso, Chili, Nov. 22. HENRY SEWELL, M.E., F.R.G.S.

Valparaiso, Chili, Nov. 22. La Patria publishes the following:—"Mr. Joseph Gautherot, a distinguished hydroscopist, has had the good fortune to make an important discovery near Limache, 20 miles from Valparaiso. While endeavouring to find water for a vineyard which he intended to plant on the estate of Mr. Urmeneta, and to choose a spot where it might be exposed to the sun all day he had been making hydroscopical investigations on a small hillock to the eastward of the Peña Blanca hills. Mr. Gautherot was searching for water, but a more agreeable surprise awaited him, for after several good blows from a pick a splendid layer of auriferous quartz became visible. The discoverer having had a couple of panfuls washed they gave a result of 40 grains of gold, some of which were large enough to be termed nuggets. The discoverer and owner of the land have asked for several grants (lots), and washing is expected to commence very soon. An engine costing \$6000 (12000) has been ordered, which will admit of washing at the rate of \$2000 per diem."

THE EMMA MINE.

SIR,—So much has already been written upon the Emma Mine that it seems almost superfluous to say more, but there is no doubt in the minds of those who know the mine that if it again falls into the hands of Americans it will yet be one of the foremost mines of the West. Let anyone having a copy of the plan of the mine trace along the strike of the vein, and it will be found that the North Star, Vallejo, South Star, and Flagstaff Mines are situated upon the same vein towards the west, and towards the east are the Murphy, Grizzly, Evergreen, and Darlington, in all probability upon the eastern continuation of the same vein. That the mine is "faulted" does not prove that it is exhausted, and when I examined the mine on the last day that it was worked I saw bodies of ore, of small extent it is true, which Mr. Attwood assured me would assay from \$2000 to \$7000 per ton. Again, in the Equitable tunnel I struck a vein of ore 22 in. wide, and from which that company extracted 128 sacks of ore which assayed 68 ozs. silver and 44 per cent. lead. All this was taken out in one night. This vein was evidently a spur from the Emma Mine, as it was followed into the old works of the mine. I also noticed when I examined the lower works of the Emma that in the east levels there were several leaders going off along the strike off the lode, which would be considered excellent prospects in any mine in the country, and, judging by the character of the country to the east, and the presence of these shoots in the east workings, I have no doubt that in this direction bodies of ore can be found that will more than pay all the expenses of working the mine to the deep. I estimate that the entire cost of putting the Emma Mine on a permanent paying basis below the brink will not exceed \$35,000 to \$50,000, the most of which can be obtained from the ground above the bottom of the Attwood winze, and perhaps enough to pay more than one dividend on the capital by pushing the works towards the east.

Salt Lake City, Utah, Dec. 30.

J. H. MORTON, M.E.

THE ARSENIC TRADE.

SIR,—After the many conflicting reports in circulation with regard to the prices realised for refined arsenic during the year 1875, and the prices paid in that year by the refiners to the mines producing crude arsenic or soot, it is satisfactory to have the help of "Truth" in endeavouring to solve the problem. Taking "Truth's" own quotation, the utmost price paid for soot was 10s. 2s. 9d. at South Wheel Croft in March, 1875. Mr. Field, of the Cornwall Arsenic Works, states that at the very time referred to—March, 1875—refined arsenic was selling at 17s. per ton, consequently without any "wilful misleadings" the plain fact stands prominently out that the refiners secured the very tolerable sum of 6s. 17s. 3d. on every ton, the amount between the price they gave the miner and the sum they themselves were obtaining for refined arsenic.

Jan. 15.

MEMO.

THE ARSENIC TRADE.

SIR,—West Seton arsenic realised 8s. 10s. per ton in February, 1875, not 6s. 10s., as incorrectly printed by you in my letter of Jan. 10.

Jan. 16.

TRUTH.

GOLD MINING—THE CLOGAU COMPANY.

SIR,—My attention has been drawn to that official portion of last week's Journal wherein it is stated that the Welsh Gold Mining Companies appear to be making satisfactory progress. Short reference is then made to the Cefn Coch Mine, where "nothing particularly new is reported." The Journal then makes mention of the mere existence of the Clogau Company, and even then only indirectly by mention of its directors, and to that company offers me up as a sacrifice. The charges sufficiently appear by my refutation of them, as follows:—

I say, for the information of those who did not read my letter in the *Mining Journal*, of Dec. 16, that no perverted ingenuity could construe that letter into any assertion or insinuation that the Clogau directors were acting under my advice. It is incorrect that "in consequence of Mr. Harvey's letter prophesying disappointment the Chairman and a shareholder went at once to Mr. Harvey's office." The letter of Dec. 16, 1876, was written, as everyone must know, only a little over a month ago. I first wrote to the shareholder on Dec. 21, 1875, that "the mine is a very valuable property, but under the present system of working must sooner or later end in disappointment to all parties interested." It was not until Feb. 19 subsequently that the Chairman and shareholder called on me, when I expressed my opinion as freely as I had already written it, and requested the Chairman to commit to paper what he desired of me. I have never seen or heard of or from him since.

On March 7, 1876, I again saw the shareholder. On March 8, as a consequence of that interview, I wrote to the shareholder—"I should not like any one portion or more of my plan for extracting gold to be used without adopting it in its entirety, if you are prepared for the latter course I should be quite willing to assist you." On March 10 I again wrote him—"I am convinced that to adopt an integral portion of the machinery which I should advise would not be satisfactory, &c., I can still do no more than repeat my advice—to have recourse to a different system, whether mine or another." Again, in refusing I gave my reason on May 9 last, in writing as follows:—"I am of opinion that to apply any portion of a known process to the present (pardon me for saying so) imperfect appliances adopted for extracting gold by mechanical means would, if unsuccessful, seriously interfere with any future operations to be carried on with a like object in the same locality."

The full correspondence will even more completely satisfy any

shareholder of the Clogau Company, who can peruse it on application to me, and the same, Sir, is equally at your disposal. And I ask for the insertion of this letter in your ensuing issue in order that I may deny as publicly as it was made the serious charge that I refused, as an engineer, to advise the Clogau Company unless I should have full control of its works. C. J. HARVEY.
Moorgate-street, Jan. 18.

LONDON MINING DIRECTORS.

SIR,—The system heretofore acted on as regards mines started by London promoters is a very bad one, and should be abrogated. I refer to the appointment of a "direction" consisting of gentlemen who know little or nothing of mining affairs. Sometimes they are paid 5000, or 10000, or a much larger sum each, for taking the appointment of directors if they are men who will bring "grist to the mill"—i.e., bring some of the capital of their friends into the working capital of the company to be formed. Their remuneration is paid out of the company's capital, a considerable portion of which also goes into the pockets of the promoters, who care little as to the result of the mining if they can obtain the "consideration" for obtaining the licenses or leases from the landowner. Many mines have been submerged—so to speak—by the extravagance and ignorance of London directors when they have their own way in opposition to the judgment and practical knowledge of the agents in charge at the mines. The expenses incurred by the frequent visits of the directors to the mines form a very material item in the cost-book of the mine, the whole of which, and the salaries paid to them for their services (?), may be looked upon as wasted money. The expense of three or four or more gentlemen coming down from London to Cornwall per first-class trains, and stopping at first-class hotels, must be heavy where the expenses do not come out of their own resources. That makes a difference! In addition to the cost of maintaining the directors there is also the cost of maintaining a London office and clerks, which in some cases amounts to several hundreds a year, and all these expenses are sometimes charged upon mines where very little has been done in opening lodes, or anything else of consequence effected. In this way a "limited" capital is soon exhausted, and the affairs go into liquidation. Then the losses are attributed to the badness of mining as a subject for speculation! I have no objection to a director if he is a duly qualified man for the situation, and is resident on or near the mine so that he may really serve the company, and earn his salary. A duly qualified man like Capt. Josiah Thomas, Capt. R. Pryor, Capt. W. Teague, or Capt. J. Richards of Devon Consols, might be safely trusted with the direction of mining affairs, because they know how to conduct them aright. I hope the time will return when our mines will be conducted more in consonance with common sense, like they were 50 years ago, when nominal stipendiary directors were unknown and never dreamed of.
Jan. 18.

TRUTH.

CORNISH MINING—OPENING OF THE NEW YEAR.

SIR,—It is with some degree of regret that the perusal of your valuable Journal up to this date fails to give your readers the usual data and practical intelligence in regard to Cornish mining which, for a number of years, they have received through its columns at the close of the old and opening of the New Year, and which the mining public, almost as a right of inheritance expect at your hands. Why is it that nothing is said of the Penstruthal, St. Austell, and the St. Just districts? Is it that merit is unrecognised unless forced into notice through certain favoured and isolated channels, or from the tacit and crippling conviction that for the moment mining enterprise in the South-West Peninsula is out of vogue, and that, like the transition in foreign bonds, the metamorphosis from the pinnacle of unchallenged confidence to that of a chilling atmosphere toned down to zero must pervade all mining operations before the cycle of recurring incidents change universal distrust into honest and honourable activity and repute? It is true that history from time to time repeats itself, and but for panics and their accompanying periods of depression and inanity we should exist in an ever expanding and inflated, though chronic state of fever, while overwrought confidence in the future would utterly destroy the true standard and equilibrium of property and labour. Still, without hope enterprise must languish, and the perspective would, indeed, become a blank were not the cycles of events ever demonstrating that depression and distrust are superseded and followed by periods of expansion and confidence; while the occurrence of the first clear way and remove the obstructions necessary to *chaperone* the latter. Hence we hope that the time is not distant when Cornish mining will again revive, and witness for the hundredth time that cycle of prosperity which stimulate industry, advance the material prosperity of the community, and enrich the world.

Our attention has recently, and we may add on many former occasions, been called to the Penstruthal Mine, in the Gwennap district. It is well known that this property is traversed by many champion and highly mineralised lodes, and that only one of them has been wrought to any great extent, although gains of fully 100,000, were rapidly acquired. The company's sett is in the group comprising the Tresavean, Trethellan, Treviskey, Penstruthal, Beauchamp, Buller and Comfort, and other well-known and recognised copper mines, in each and all of which the junction of the granite and killas with the clay-slate takes place, or lay immediately contiguous thereto. This channel of ground is peculiarly characteristic of rich and profitable deposits of copper ores, and for the rapid and important changes from progressive into dividend properties. The Tresavean soon advanced from a 1l. to 5000, up to 10000, and on to 27000 a share, and in the aggregate paid about 450,000, profits on an outlay of less than 50000. Trethellan gave 50,000, Treviskey 38,000, and were early prizes upon exceedingly small sums called up. Next in rotation is the Penstruthal, which from the lode before referred to gave large profits. The present company is chiefly working on Highburrow lode, standing to the north of the one previously wrought, and the shaft is sunk to the 72, and about 50 fms. west of the western cross-course in Tresavean, 160 fms. west of Buller, and 150 fms. west of Tresavean eastern cross-course, which stand in the Penstruthal grant, about 100 fms. west of the junction of the killas with the granite; and, taken in a mining view, each and all of these features are most important in relation to the future of that property. The north and south magnetic currents, which intersect the electric currents of the east and west lodes, render these cross-courses of primary importance in this case, while the junction of the two strata adds wonderfully to the prospective value of the undertaking.

At and about the engine-shaft an expert who has recently visited the mine informs us that in the 46 the lode yields for 50 fms. in length from 8 to 15 cwt. of copper ore per fm. In the 58, for 60 to 70 fms. in length, from 1 to 2 tons of copper ore per fathom, while the shaft sunk to the 72 is equally as productive, and ends both east and west are just started in productive ground, while in a winze sunk under the 58, and contiguous to the western cross-course above referred to, the lode is worth 250, per fm.; and estimates the ore in reserve at the sum of 12,0000, to 15,0000, that can be wrought from 4s. to 5s. and 6s. in 1l. Buller, next in rotation north, was not very rich for copper ore when first discovered, but in 20 fms. sinking it increased in value to 2000, per fathom, and shares advanced to 5000, each, and within a few months the price rose to 10000, and the dividends to 250, and 300, per share two-monthly. The changes in value of North Basset, West Basset, East Basset, Basset and South Frances, were equally sudden and unexpected with the Buller and Tresavean Mines, and in our opinion there are features of lively interest now being developed at the Penstruthal Mine. The workings have attained the requisite depth, while the position of the shaft and the explorations going on in the vicinity of the cross-courses with the junction of the two strata ahead, speak volumes in favour of early substantial discoveries.

Again, in the St. Austell district we have Eliza Consols, the prize of last year, and the two dividends of 30000, each augur greatly in favour of the future. This district has afforded us wonderful examples of mining prosperity, as for example Fowey and Par Consols, the former gave over 300,000, and the latter 400,000 gain. Phoenix was and is another wonder, and the successes at these mines have

been eclipsed in amounts and brilliancy by others—the Crinnis, East Crinnis, and Pembroke, while the district is scarcely one-tenth part explored, notwithstanding that numerous productive tin, copper, and lead lodes have been discovered close up to surface. At Pons Mill, however, a company has taken up Sir Coleman Rashby's lands upon most favourable terms as regards royalties and damages to land. No less than eight veins have been discovered, all of which are highly charged with ore. One yields 2 tons and another 1 ton of rich copper ore per fathom, while a third turns out 1 ton of black tin per fathom. The outlay required will be readily subscribed, and as the lodes in Fowey yielded 300,000, dividends, and they show equal promise of productiveness in going westward, we hope that the spirited promoters and adventurers will receive that substantial gain which the prospects at starting lead them to expect.

In the Far West local mining exhibit great enterprise, and we trust that the resuscitation of St. Just Amalgamated, the production of Botallack, and other undertakings, will not only recoup the outlay, but draw further and extraneous support to the latent mineral riches of the district.
Basset-street, Camborne, Jan. 18.

NIL DESPERANDUM.

THE MURCHISON TESTIMONIAL.

SIR,—Your correspondent "S." refers to Mr. Murchison's political qualifications, but it may not be generally known that Mr. Murchison was the author of the famous political pamphlet published as long ago as 1847, under the signature of "Plain Facts," which was attributed to no less a person than the late Sir Robert Peel. There were numerous "leaders" on it in the most influential of the London and provincial press, in which it was treated by the Times as the manifesto of the "Peel Party," and by other papers as written by someone of high official or ex-official consequence. The Quarterly Review had a long article on the pamphlet, stating that the author was generally believed to be Mr. Goulburn, the Chancellor of the Exchequer in Sir R. Peel's then recent Administration; while some said it was Mr. (now Lord) Cardwell. Mr. Murchison replied to the Quarterly, and subsequently published another pamphlet under the title of "Political Principles and Political Consistency." In 1859 Mr. Murchison came out as a candidate for Truro, and only retired at the last moment, rather than jeopardise the chance of the now eminent Judge, Sir Montague Smith, who was then the other Conservative candidate, and for whom many Liberals had promised to vote, but who resolved to withdraw their promise if the attempt to get in two Conservatives were persevered with. In 1866 Mr. Murchison published "Conservatives and Liberals, their Principles and Policy," which also attracted much attention. I think, therefore, that Mr. Murchison has fully earned a claim for a seat in Parliament. His writings on British mining are so numerous, and spread over so many years, that it is difficult to refer to them particularly. His pamphlet on British Lead Mines, published about a year ago, may, however, be considered one of the ablest and most important of his productions. It has been favourably noticed in the Times and many other papers, and has given great satisfaction generally. The subject is treated far more impartially and thoughtfully than is generally the case with mining matters, and the publication has been of great advantage to the British mining interest. I would suggest that a committee be formed to receive subscriptions, to which I would, for one, contribute; and as your correspondent "S." invites communications from your readers, I am ready to co-operate with him in so deserving an object.—Jan. 18.

R. WHITE.

DEVON GREAT CONSOLS.

SIR,—A few weeks ago a gentleman, in a letter to me, in speaking of Devon Great Consols, said that a very heavy incubus on the mine was the maintenance of a directorate and a London office. There is a resident director, which costs in salary, &c., about 7000, a year, and the other official expenses cannot be much less, I suppose, than 10000, a year more. Under the reduced circumstances of the mine it would be well to shut up the London office as a useless appendage, and a local director is also superfluous. Capt. J. Richards and his staff on the mine are amply sufficient for the executive in a concern of that extent. Capt. Richards is a tried man, and so, I believe, are all his co-adjudors, so that there need not be, and is not, any want of confidence in their integrity and ability. When the mine was giving a profit of 60,000, a year the cost of keeping a London office and local director were not felt, but now that the profits are for the present nil, economy should be the order of the day. Let the secretary and Mr. Hitchens have retiring pensions; the local director does not want it, being a man of greater means. It is in the interest of the company that I throw out these suggestions, and not from any ill feeling towards anyone concerned.
Calstock, Jan. 18.

J. THOMAS.

WHEEL GRENVILLE, AND ITS MANAGEMENT.

SIR,—Amid all the uncertainties and vicissitudes attaching to the mining interests, so far as my experience guides me, the Wheel Grenville Mine stands most conspicuous during the past 12 months, or rather since the unfortunate change of management was brought about. The shareholders have paid the penalty for the transfer by the fact that during so short an interval the property has decreased in value by 15,000, at the very least—the market value of the shares having fallen from over 30, per share to the merely nominal value at which they have been bought, in addition to which there have been continuous calls made every three months; and now that the disastrous flooding of the mine has unfortunately occurred, the shareholders will, no doubt, awaken themselves to their position, and enquire what benefit have they derived from the change of management? The most that can be said of the present management is that certain merchants' bills were left as a legacy, and remained unpaid, and that by the continuous calls levied upon poor shareholders they have succeeded by such wonderful management in settling these merchants' bills.

Now that the mine is flooded and has become virtually a complete wreck, the question which will come home to every shareholder will be—What next? Well, the answer must be that the mine must be either abandoned or re-organised upon a firm and sure basis, and this can only be done by the raising of sufficient capital (certainly not less than 10,000); or, in other words, the present proprietors would have to advance 20, per share upon the present holding. This apparently may seem a large amount, but in reality not so, when the fact is taken into consideration, and the certainty that the present machinery must be replaced by that of greater power, which will entail a very heavy expense in the necessary alterations of pitwork, &c., and that the necessity will be the more apparent from the unfortunate flooding of the mine at the present time, and to be prepared with machinery of sufficient power so as to guard against a like occurrence.

The most suicidal policy either on the part of the management or the shareholders I consider will be the attempt to fritter away more money in the endeavour to patch up the present deadlock. It will be comparatively speaking to throw good money after bad; to fork the mine, and other additional expenses, besides the loss of time, will require a considerable amount; and even when this is accomplished, and taking into consideration the lessons which have been taught from past experience, the shareholders will act wisely in firmly resisting any further useless and fruitless expenditure, as they must know perfectly well that the present machinery is quite unequal to its requirements, and to attempt to sink the shaft would be worse than madness. It is not surprising that the late secretary (Mr. J. Watson) has recently been venturing the question of present management in the Journal, and no doubt he is amused at the comparatively prosperous condition in which the mine was prior to the change, and the very unsatisfactory position it is now placed in. Anything short of re-organisation, and the raising of capital to the amount suggested will, in my opinion, be useless, indeed, will be certain to entail further sacrifices. A voluntary winding-up under present circumstances would be advantageous, as it would release those dissentients who, perhaps, for want of means or other reasons, would not feel disposed to invest further money in the concern. The

adoption of this procedure would facilitate the formation of a company, and in such case there would be no difficulty in raising 10,000, which would be ample for all purposes, and would place mine in a sound financial position.
Lloyd's, Royal Exchange, Jan. 15.

SOUTH TOLCARNE AND SOUTH CONDURROW.

SIR,—I heard it said many years ago that "the agent who held a mine is the first to be discharged from it." This rule appears to have been observed in South Condurrow and South Tolcarne, in the discharge of the managing agents. Capt. J. Vivian, about the year 1850 took up the sett of South Condurrow, because he had a good opinion of its mineral character, and formed a company, which, by the changes common in mining propriety, has been continued to the present day. He persevered through all the disheartening influences associated with an unproductive mine, till after many years his anticipations were verified—it became a good mine, and just before he brought it into a dividend state he was ousted, and Capt. Rich appointed in his place. A good deal of correspondence has since taken place on the subject, some attempting to justify and others condemning the proceeding; but those who know all the facts know well that the discharge was uncalled for and unjustifiable, if not disgraceful.

South Tolcarne is another mine in the same district also set up a few years ago by Capt. J. Vivian and Son, who did the best to make it profitable, but when the prospects became more hopeful than at any previous date, they were discharged (at the meeting) in the most abrupt manner that can be conceived. Persons who moved and seconded a resolution so unwarrantable serve no good mine, nor any good thing in the world, and perhaps they will never have it.—Jan. 16.

R. A.

EAST LOVELL MINE.

SIR,—I hold a small interest in this mine, some of my shares being more than 200, each, and during the time my name has been in the books the mine has passed from the dividend into the call list. I can make every allowance for difficulties experienced by managers and pursers in dealing with the affairs of mines, but myself and co-shareholders should be made aware from time to time of our position. The regulations for the government of cost-borne companies provide for a meeting every four months, yet our pursuer waits ten months before placing in our hands the necessary accounts. Reports are seldom inserted, and tin sales not recorded at least, I have not been able to find them announced in the Journal. I do not like publishing complaints, nor would I do so if suggestions for the good of all connected with the affair received attention from the proper quarter. Perhaps the pursuer will in future assist us in understanding the true position of affairs.
30, Great St. Helens, City, Jan. 18.

E. J. BARTLETT.

PEMBROKESHIRE MINERALS.

SIR,—The country of Pembrokeshire, the most western of South Wales, is 37 miles long, with a mean breadth of 28 miles, and contains 368,000 acres; it is bounded on the north-east and east by Cardigan and Carmarthenshire, the sides being surrounded by the sea. It is a rich agricultural county, but its productive minerals, a great many good slate quarries being at work at the present time, as an instance of which I might refer to an excellent quarry near David's—the St. Bride's Slate and Slab Quarry—which was started a few months ago, and appears to be turning out very successfully; there are already good works for slates, and there is no doubt it will pay the present company well to be properly developed. There are also excellent slates at St. David's Head, which would be well worth the while of a company to take up and work. But about two miles more to the south, opposite Ramsey Head, there is an excellent opining property and brick ground, worth thousands of pounds. The copper visible, and has been proved to be of the best quality, both for the percentage metal contained and for the facility for smelting; it requires very little flux, and there is an excellent site upon the property itself for the erection of smelting works, which would be conveniently situated for shipping and general commercial purposes. I think the lode formation appears to be coming right across St. George's Channel from Cornwall. All that is wanted to facilitate the rapid development of the district is a railway down to this ancient city.
St. David's, Jan. 17.

THOMAS EVANS, Engineer.

NORTH LAXEY MINE.

SIR,—The present prospects of this mine indicate, without doubt, that we have a second Great Laxey Mine at hand. The large purchases lately effected by island inhabitants say much for its value. Like East Van, it is a favourite on Stock Exchange, and shares are readily negotiable. The opinion of Capt. Rich who has stuck to it with so much pluck and determination for so long, shows his judgment of this property has rested on solid grounds, and surely a great immediate future opens for the proprietary. The appearance of lead in the lowest part of the mine (the 136) is most important and great expectations are entertained about the 60 fathom level from recent discoveries. There is 4000, in cash to open out the mine, and the slopes all round are improving. North Laxey ought to become a dividend mine, like her neighbour, in a very brief time. A few weeks will clearly demonstrate to one who believes in much less time.

SHAREHOLDER.

SAINT PATRICK MINE.

SIR,—The improving appearances of the drivages in this mine, situated in Holywell, in Flintshire, seem to denote that the lode is at hand in the 136. Its well-lode, a main vein. Valuable deposits of lead in the 60, or 60, or 60, are daily expected, and a marked improvement has taken place, and every indication points to a vast deposit of lead ore. St. Patrick has only 6500, capital, and will, it is expected, pay 100 per cent. dividends on cutting rich ore believed to exist in every direction on this property. No limit should be placed on the returns from St. Patrick, judging by other adjoining properties such as the Penrynblas, a sister mine, gave 60,000, a year for 30 years, only, on a rib of ore from 4 to 8 inches wide, when ore was at 80, per ton; the Penrynblas did much more—adjoining St. Patrick; and itself, the Penrynblas, on the north, has a little gem, gave 500,000, profit when lead fetched but 80, per ton; 3 set is, however, very large—embraces all Prince Patrick and South Prince Patrick set together. No pumping expenses are needed, the mine draining itself; a very important matter in mining. The smelting works are also on fire, and the mine worked with great economy. What more can be sought for an ideal mine?

SPECULATOR.

FRONTINO AND BOLIVIA MINING COMPANY.

SIR,—Can any of your numerous readers give me any information respecting the Frontino and Bolivia Mine? A general meeting was due to be held in December last, but no reason for withholding the meeting has been announced. I am aware that the immediate neighbourhood of the mines has been in a sharp and bloody revolution, which even now is still raging. Under such circumstances as exist one would think it to be the duty of the directors to call the shareholders together to explain matters, and if possible throw out a "crumb of comfort," instead of keeping everything to themselves. That some sort of news and then arrives is self-evident from the fluctuations of the shares. If I call at office I am told that "nothing is known." I need hardly say that such meagre news are not satisfactory. We used to have monthly reports, but rarely get them now, yet we see Malpas, Malabar, and others get them regularly.
A LARGE SHAREHOLDER.

STEEL SHAFTS.—Several vessels in the navy are being fitted with hollow shafts made of compressed steel. The shafts are about 30 inches thick, and do not weigh so much as the solid forged iron shaft which are at present employed in much smaller vessels.

AN ATMOSPHERIC LOCOMOTIVE ENGINE.—An atmospheric locomotive engine, designed by Major Beaumont, Royal Engineers, has been on trial at Woolwich Arsenal for some time past, and appears likely to be attended with success. The apparatus consists of a large number of elongated cylinders—about 70 in all—piled together in an oblique stack, each cylinder being some 4 in. in diameter and about 6 ft. in length. Mounted on an ordinary truck, and by an ordinary crank arrangement, the compressed air stored in the cylinders has been found to exercise power sufficient to draw a light load for a considerable distance, and to keep up speed for a long time before requiring to be replenished.

COMING.—It is a fixed fact that the Virginia and Truckee Railroad is to be extended to Genoa. The route has been surveyed, and we learn that the grade of the road will be commenced soon after New Year's day. This extension will save Alpine travellers a tedious ride of 13 miles. It will not be long before the railway will find it to their interest to extend the road to Alpine County.

ORE.—The continued fine weather is enabling manager Chalmers to accumulate a large body of Eschequer ore at the company's mill, which will soon be put to work.—*Alpine Chronicle*, Dec. 23.

HOLLOWAY'S PILLS.—This purifying and regulating medicine should be constantly had recourse to during foggy, cold, and wet weather. These pills are best preventives of hoarseness, sore throat, diphtheria, pleurisy, and asthma, and are sure remedies for congestion, bronchitis, and inflammation. A moderate attention to the directions folded round each box will enable every invalid to take the pills in the most advantageous manner; they will there be taught the proper dose and the circumstances under which they must be increased or diminished. Holloway's pills act as alteratives, aperients, and tonics. Wherever these pills have been taken as the last resource, the result has always been gratifying; even when the failure to cure, they always assuage the severity of symptoms and diminish danger.

THE general in offices, Austinfri The London m the subjoined re Your directors h in frequent co aware of the n repeated strugg additional co subscribed for p ment time, for f thecher theferr the expenses in (inst., and it sh that by the end of work. He again sp in accordance lones. "Urgent, gr through the Joun to remit to M to the extent of 10 find by the acc for 43730, and U. S. Company's return of 4150, highly auriferous the information is in the work advanced by 11720, of which 7120, your opinion a finding that by the most be four, your of Major J. Jeffe Col. Weller, go about T. B. Evans Mr. FANSHAW

AUSTRALIAN

of a reme CHAIRMAN said the of 1500,000, been liquidated, completed the Novem Mr. FANSHAW took position the would save the pro SHAREHOLDERS 30 per cent. interest The CHAIRMAN port and account the balance-sh he believed it Any of the sh He might expl shares, bearing 0000 deferred pay, so that t formation of g gold, and the tifying to find of 3878, they l things were lo 2500, 7s. 6d., an was only about all the informa they were now s overance. He Mr. MURCHISON then as to whether and practical b holders and the royalty they had The CHAIRMAN the making the money was raisd tly. With regard holders considered encouraging to m might remark th holders, who had the new shares recent advances, he thought they Mr. WILLIAMS who had assisted with the felt to see the result of the new shares Mr. FANSHAW for giving the act that creditors ha emergencies; it h have it in hand them, and oug the report and the necessary tional 120000, to a directors, and T. vote of thanks to

LEADHILL

The statutor offices, St. Hel meeting and t with regard to the figures sin plicated. The

THE CHAIRMAN

with the Act company's po as the smelti November, smelt all the tained permit smelting; of 100 tons woul They had no to expendit that the tota of the lead s the total exp that there w garded as a large, extend form four or but their sm of ore. They as 70 tons pe erect, and t them equal t the day was to declare s the property give the me Mr. PETER W solely in neg pending, and it was a g

tion and consolidation. Captain Josiah Thomas was to blame for buying dynamite from Mr. Rule, when he could get it on better terms by dealing direct with the company. He had been introducing lithofracter, and he believed it was going to supersede both dynamite and tonite, and be much cheaper. The health of the agents of neighbouring mines having been drank, Captain C. THOMAS said that in 1858 the production of tin throughout the world was only 15,000 tons, and the price was then 70¢ per ton. Soon after that time they had about 31,000 tons, and the consumption was about the same, so that the consumption had overtaken the greatly-increased supply; and yet the depression during the last two years had been greater than for the last thirty years. There had been

a falling off in Straits, Banca, and Cornwall produce; and he, therefore, believed that with an increasing consumption, with the Eastern Question settled, with the American Presidency quietly fixed—because we were more dependent upon America than upon 20,000,000 Turks—that in less than two years the consumption would be 40,000 tons a year; and where were they going to raise it from? He believed that in less than twelve months—before Christmas, 1877—they would have tin at over 60s. per ton.—*West Briton.*

WHEEL PEEVOR.—The adventurers held a four-monthly meeting, on Thursday, when the accounts showed a loss of just over 500*l.* At the last meeting it was very confidently anticipated that by this time the mine would have been paying its costs, and it is beyond all doubt that the expectations of the pursuer and manager would have been more than realised had it not been for the defective state of the county adit, which a fortnight since let the water in upon the mine, and has necessitated a suspension of operations from that time to this. The flooding of the mine from this cause has made all the difference between a comparatively large loss and a profit of 150*l.* or 200*l.*, and it is not to be wondered at that the adventurers should be very irate when they reflect that on the eve of success they are seriously crippled by the neglect of others, especially as they are regularly paying for a supervision of the county adit, which it is clear is not exercised. The fact is completely established that Wheel Peevor is a genuine adventure, and capable, under ordinary circumstances, of making profits, even with the present low tin standard, and with fair play it will be one of the first call-making mines in the county to enter the Dividend List.—*Western Daily Mercury.*

MANUFACTURE OF COKE FROM SMALL COAL.

The crushing and washing of coal for the manufacture of coke has received a large amount of attention in America, and a new process is at present in successful operation at Messrs. Robson and CAMPBELL'S works at Pittsburgh, and coke especially applicable to the production of a fine grade of iron is being produced in large quantities. The slack is brought down the river by ordinary coal barges, and run from them by an inclined tramway, and dumped into a large bin erected above the machinery. At the side and bottom of this bin is a gate opening into a chute, through which the lump coal and slack falls. Previous to its introduction to the separator it is passed through a crusher of peculiar construction, located on the second-floor of the works and above the separator box, being raised by means of endless chain buckets. The crusher consists of two pairs of rollers, the two upper rollers being toothed to break the lumps into pieces of about $\frac{1}{2}$ in. in size, the lower rollers being smooth, reducing the slack to about $\frac{1}{4}$ or $\frac{1}{2}$ in. in size, according to the quality of the coal. On leaving the crusher the whole of the fine material slides down an inclined plane to the rear end of the two separator screens, which are of brass wire, with meshes less than 1-32nd of an inch.

In the separator the slate, sulphur, &c., are removed from the coal by a jiggling process, advantage being taken of the difference of specific gravity. An elevator provided with buckets takes the washed coal away as it comes out of the separator, and carries it up to a trestle work, over which it is conveyed to the ovens in cars. To catch the very fine coal carried away by the delivered water a box about 6 feet x 8 feet is placed below and near to the delivery; the fine coal is thus raised from the box by a special elevator, and carried up and deposited with the rest in the cars. There is no revolving drum to separate the various sizes of coal and feed it into corresponding washing boxes, as used in other coal washing machinery, nor is there any revolving scraper to deliver the separated coal. All is done at one operation, and in the most simple manner possible; the material coming down upon the screens is delivered at each stroke of the machinery into a special compartment, from which the elevator receives and conveys it to the cars.

The slack operated upon contains a considerable quantity of slate and sulphur; and, the greater part of the latter being deposited in fine leaves along the edges of the slate, and less in pyrites, the separation has heretofore been very difficult, but the difficulty is entirely removed by Messrs. Robson and Campbell's machinery. The coke is made in beehive ovens, is hard, resonant, of silvery colour, and especially free from slate and sulphur. An analysis of the coke shows 90 per cent. of carbon, 7 per cent. of ash, 2 per cent. of volatile matter, and less than 1 per cent. of moisture and sulphate. The machinery was constructed to wash 5000 bushels of slack per day, but it easily washes 6000; and, as this amount is more than the company require for conversion into coke, they are selling washed slack coal at a very fair price, it being extensively used by foundries in the neighbourhood. The cost of manipulation does not exceed one-tenth of a cent per bushel of washed coal. By including the handling of the coal from the flats at the river to the machinery, and thence to the tops of the ovens, the whole cost is estimated at about $\frac{1}{2}$ cent per bushel. According to the quality of the slack the amount of impurities washed out is stated to be from 4 to 10 per cent.

FOREIGN MINING AND METALLURGY.

The French iron trade presents no material change. Large transactions make default, but there is a pretty good current of small orders, which enable the proprietors of works to exist, if not to live. A revival in the building trade at Paris has imported a rather decided stimulus to the consumption of girders and some other articles, for which small orders are being given out with tolerable regularity. In the Ardennes charcoal-made pig appears to be in less and less use from day to day. As regards plates and rails a moderate competition is carried on for orders for them at almost absurd prices; work, it would almost seem, can only be obtained upon condition that profit is regarded as a secondary consideration. The formation of syndicates is spoken of with a view to the maintenance and, if possible, the advance of quotations. Meanwhile, there is scarcely anything to report as to transactions and prices. The French iron trade can only wait and hope for better times.

According to a paragraph in the National Zeitung, it would seem that the Westphalian coalowners have not succeeded so well in their competition with English coal in the markets of the North Sea ports as has been supposed. The imports of coal into Hamburg during last year were very heavy, the supply from England exceeding the total for the preceding year by several thousand tons. Our contemporary explains this circumstance by saying that in the vast majority of the manufacturing and industrial establishments English coal is undoubtedly preferred to Westphalian. The quantity of the latter sort imported into Hamburg is only about the ninth part of the entire imports, and it is used chiefly for the steam lines running to America. Stocks of coal in Hamburg were small at the end of the year.

The new year has commenced, as 1876 must be said to have finished, very indifferently for the Belgian iron trade. It is a long time since such continued depression has been so tenaciously maintained in Belgium. A few adjudications certainly enable industrialists to keep their works moving, but they are obliged to accept terribly low prices. The Belgian Government appears to be at length impressed with the depressed condition of Belgian industry, as for some time past rather important concessions have been succeeding each other in tolerably rapid succession. Thus contracts for 25 locomotives have been let in lots of five engines each to two of the leading Belgian mechanical firms. These locomotives are of the type in use on the Belgian State system, and they weigh 30 tons each without their tenders; ten have been let to the John Cockerill Company, and 15 to the Couillet Company. The terms upon which these engines have been contracted for are 15 per cent. below those agreed to about a month since for 35 locomotives which were then ordered. Orders for about 300 coal trucks, divided into eight lots, have also been let. A contract for about 4500 tons of steel rails, which the Angleur Steel Works Company had provisionally secured in Germany, has not been approved. Contracts for four passenger engines and eight goods engines are to be let next month for the Thuringian Railway. The Belgian Plant Company, of which M. Evard is the managing director, has obtained an order for an iron bridge on Russian account.

The Belgian coal trade exhibits no improvement. It could not well be otherwise, since the iron trade is reducing the number of its furnaces in activity, while the sugar trade is far from exhibiting the activity which it has displayed in some former years. The principal remedy for the depression which now weighs down the Belgian coal trade is, probably, a prudent reduction in the extraction. Prices are so low that it is not to the interest of any coalowner to push works forward, unless, indeed, it should be preparatory work. The more the winter advances the more rare and difficult transactions in coal appear to be becoming in Belgium. One Belgian basin ex-

hibits more animation than the others, and most of the coalowners are reducing their extraction; although, however, they are pursuing this course, there are considerable stocks on hand at some points. A project has been brought forward for the construction of a canal between Verlon, Muelon, Crefeld, and the Rhine. This canal, in concert with other canals already existing and other projected navigations, would give Westphalian coal easy access to Belgium and Holland, and would also facilitate their conveyance over sea in competition with English coal.

The Paris copper market has presented scarcely any change. Upon the German copper markets quotations have been to some extent nominal. The Paris tin market has ruled very quiet. Transactions in tin have been small at Rotterdam; the demand on consumptive account has been feeble, but holders have, nevertheless, remained firm, and have refused to sell below the quoted prices. The lead markets have been pretty well supported. Zinc has exhibited little change.

No improvement can be noted in the French coal trade. The weather has ruled extremely mild, and the demand for coal has been very languid in consequence at Paris. Good household qualities of coal have been selling at Paris at 2*l.* 2*s.* to 2*l.* 4*s.* per ton. Industrial coal has not been selling at all more readily than coal for domestic purposes. In the Nord and the Pas-de-Calais the extraction is being reduced to a considerable extent; not only has the demand been languid, but the coalowners have had to contend against the more active competition of English and Belgian coal. In the Loire basin there has been a tolerably regular demand for industrial descriptions of coal; this alone has served to mitigate the situation. The French Minister of Public Works has been making a tour in Belgium and Holland; the minister was everywhere well received. He was accompanied by several railway directors and engineers, and his trip is said to have confirmed him in his preference for the French system of great railway companies.

OREGON HYDRAULIC GOLD MINES.—Mr. J. E. Bowe, a director, has prepared a long report on the condition and state of development of the property when he left it in July last, and on improvements since made by Mr. Frank Ennis, the manager. He reached the mines on June 18, 1875, but did not obtain transfer of the property until July 10. They soon after commenced permanent survey about 37 ft. perpendicular above the old Quartz Creek dam. This main ditch—4 miles 14 rods in length—has a capacity of 2394 miners' inches. About 133 rods of the upper portion, and several rods at the crossing of ravines, are flumed, the flume being 4 ft. by 3 ft., of $\frac{1}{4}$ in. sugar-pine lumber, well stayed with cedar sills, posts, and caps. The south branch ditch—395 rods long—has a capacity of 1350 miners' inches. There are several intervening gulches and canyons emptying into these two ditches. The Quartz Creek ditch takes the water of that creek and of the main ditch, and delivers it at the Reed claim. The capacities are—Quartz Creek ditch, 3183 miners' inches; ditto extension ditch, 1500 inches; the former was made large to give an extra head of water for Thos claim. The new extension ditch has 1900 inches capacity for the first 339 rods, and 1100 inches for the remainder (845 rods) to Thos reservoir; the latter has been constructed for \$8000 by Mr. Ennis since Mr. Bowe left. The grade of all the ditches is 12.8 ft. in the mile. The Thos ditch—354 rods long—which takes water from Rocky and Rich gulches, and conveys it to the Thos claim, has a capacity of 1350 inches. The supply of water last year was here about 500 inches for five months, and with regard to Reed water right, the flow was 350 inches on July 28, 1875; from October 20 to February 6, 1876, there was a minimum of 2700 inches; 3350 inches minimum to May 6. On May 15 it had declined to 1190 inches, and on June 5 to 539 inches. The total expenditure for mine purchase, patents, and construction to July 1 last was \$50,027. The superficial area of the property is 509 acres. The Reed tract contains 30 acres, the Effinger tract 159, the Thos tract 180, and the Steel tract 150. The United States patents for the Effinger and Thos tracts have been received, and the others will issue in due course. The Reed claim is located at the southerly end of the channel, and the intervening space between this claim and the Steel claim, which is at the northerly end of the channel, is a flat bench, or kind of plateau, running parallel with Galice creek some 500 ft. to 800 ft. above the bed of that stream, and for the whole distance is a continuous bed of auriferous gravel, with the exception of the displacement occasioned by Blanchard's gulch, which separates the Reed from the Effinger tract; Applegate gulch, which separates the Effinger from Thos tract, and Rich gulch which separates the Thos from the Steel tract. All of these gulches flow down from the mountain side into Galice creek and Rogue river, intersecting and crossing the gravel channel at right angles, dividing the property as it were into four claims or tracts. These gulches are quite deep and precipitous, forming excellent outlets for tail flumes, undercurrents and dumping purposes, and as each tract or claim can, if desired, be opened from three sides, the whole property can be washed off without the cost of long and expensive bed-rock tunnels. The gravel at all points where it has been opened on the line of the channel is from 80 ft. to 120 ft. deep, and is of such a consistence as to be easily disintegrated and run off by the force of water alone, without the usual costly intervention of powder. The character of the gold taken out of both Reed claim and Thos claim, although they are quite 2½ miles apart on the channel, is identical, being coarse, heavy, and easily saved. It nearly all lodges in the first five or six head boxes of the tail flumes. As a matter of precaution, however, Mr. Ennis has constructed two undercurrents at the Thos, and one at the Reed claim. The amount of gold taken out and sent to the Mint, previous to his departure, was \$10,280. This result he thinks they will consider satisfactory, and indicative of success in the future, being obtained from desultory and experimental washing, almost at the close of the water season, and under all of the drawbacks and difficulties incidental to opening up a new and extensive property. All things considered, he can only express the opinion that they have got in their Oregon Mines one of the cheapest pieces of mining property that has ever been purchased by an English company on the Pacific Coast, and one that will pay good dividends for years to come.

LAW OF LIMITED LIABILITY COMPANIES.

In the High Court of Justice, Chancery Division, the adjourned summons in the matter of the Ebbw Vale Steel, Iron, and Coal Company (Limited) raised a question of considerable importance with respect to the reduction of capital of companies with limited liability. The company was registered in April, 1868, with a Memorandum and Articles of Association, and a nominal capital of 2,343,000*l.*, in 74,475 shares of 32*l.* each, for the purpose of carrying on a business, which, in the then state of the iron trade, was considered as a prosperous one. All the capital was subscribed, and 29*l.* per share was paid up, leaving 3*l.* per share to be called up, except 515 shares, which were paid up in full. On Nov. 12 a resolution was passed modifying the Articles of Association by enabling the company to reduce its capital, which was confirmed on Dec. 6, when another resolution was passed in the following terms:—

"That the nominal capital be reduced from 2,343,000*l.* in 74,475 shares of 32*l.* each, to 1,712,925*l.*, in 74,475 shares of 23*l.* each, by the extinction on each of such shares of paid-up capital to the extent of 9*l.*, to the intent that the present liability of 3*l.* per share on all the shares (except the 515 fully paid-up shares) shall be preserved, notwithstanding such reduction."

This resolution was confirmed on Dec. 22, and the company then presented their petition under the Companies Act, 1867, praying for the confirmation of the above special resolution, and that a proper time might be fixed for the discontinuance of the addition to the company's name of the words "and Reduced." The question whether the Court had power to sanction a reduction of paid-up capital, under the provisions of the Act of 1867, was raised by summons to proceed with the petition—a course which was adopted in order to avoid the expense of advertising the petition, before it was known what the opinion of the Court would be.

Mr. FRY, Q.C., and Mr. CHARLES M. LARSEN, in support of the application, said that the portion of the capital had been lost, and the object of the company was to do what a private firm would do in the same circumstances—write off the portion lost, so as to be able to resume the payment of dividends whenever the state of trade enabled them to do so. They referred to the case of the Credit Foncier of England ("Law Report," 11 Eq. 359), where Vice-Chancellor Bacon made an order reducing the capital of a company registered with limited liability under the Act of 1862 from 2,000,000*l.* in 200,000 shares of 10*l.* each, all of which had been paid up, to 1,000,000*l.*, in 200,000 shares of 5*l.* each.

The MASTER of the ROLLS was sorry to be of opinion that the Court had no jurisdiction to confirm the resolution, which appeared to him to be a most reasonable one. When the company had lost a portion of its capital, the best thing for the shareholders would be to write off the lost portion and go on trading with the diminished capital. This was the object of the petition. But, as his Lordship understood the Act of 1867, it did not enable this to be done. The object of the Act of 1867 was merely to enable a company which had started with too large a nominal capital, and, therefore, had imposed on its members a greater liability than there was any occasion for, to relieve them of a portion of that liability. Now, what were the provisions of the Act of 1867 on the subject? The 9th Section said, "Any Company limited by shares may, by special resolution, so far modify the conditions contained in its Memorandum of Association, if authorised so to do by its regulations as originally framed, or as altered by special resolutions, as to reduce its capital." The petition did not appear to his Lordship to be within the scope of that section. Its object was not to reduce the capital of the company—that had already been done by a very unpleasant process—but to write off the amount by which the capital was already reduced. The Act was not intended to enable a company to do that. It was intended to enable a company having larger nominal capital than it required to give notice to its creditors that at a certain date the capital would be reduced, and at that date, if nobody objected, to make the reduction. The 13th Section provided that a list of objecting creditors should be settled by the Court; and the 14th Section declared that the Court might dispense with the consent of a creditor upon security being given for his debt. These provisions were reasonable enough if the object of the 9th Section were solely to enable companies to reduce the liability of their shareholders; but were meaningless applied to a case like the present, where what was proposed to be done would not affect the rights of any creditor or diminish the liability of any shareholder. The 15th section said, "The minute"—i.e., the statement with respect to the altered capital of the company—"shall be deemed to be a statement of the truth, and for the corresponding part of the Memorandum of Association of the company, and shall be of the same validity and subject to the same alterations as if it had been

originally contained in the Memorandum of Association; and subject to the Act mentioned, no member of the company, whether past or present, shall be liable to any call or contribution exceeding in amount the difference (if any) between the amount which has been paid on such share and the amount of the share, by the minute." This provision was intelligible, if it referred to reduction of nominal capital, but not so if it referred to paid-up capital. A certain amount actually paid up could not, by virtue of the registration of a minute, be deemed to be of less amount than it actually was. He was of opinion that the Act did not give him jurisdiction to confirm the special resolution, and he was useless for the company to proceed with the petition.

PROSECUTION UNDER THE COAL MINES REGULATION

Mr. S. Horrocks, manager of the Wheatsheaf Colliery, Pendle, the property of Messrs. Knowles and Co. (Limited), answered a summons at the Manchester Police Court, on Wednesday, charging him with an infringement of the special rules of the colliery made in pursuance of the Coal Mines Regulation Act, 1872, by Mr. Joseph Dickinson, Inspector of Mines for the North-East Lancashire district. Mr. Holden, of Bolton, acted for the defendant; and Mr. J. H. P. Leresche (instructed by Mr. J. H. Bore) appeared for the plaintiff.

Mr. Holden said that the attention of the mining inspector drawn to the signalling arrangements adopted at the colliery, an accident which occurred there on Nov. 9. Early on the morning of that day three men were working at the mouth of a tunnel which was constructed about 12 yards from the bottom of the upcast shaft. An alarm given, and the men jumped into the cage, which by a combination of accidents precipitated to the bottom, and a great length of wire-rope fell upon the crushing two of them to death. Under the rules it was necessary that before men got into the cage a signal should be given and a reply received, but that they got into the cage without any such intimation. Had the rule been served the accident would have been prevented. The 42d special rule was—"Where the shaft is used for raising or lowering material, and there are no signals in the shaft, the men shall not get on to the cage or tub until the hoistman or looker on shall have been signalled to send down or up the opposite tub, or the cage with empty tubs, and until the proper signal has been returned, the hoistman shall be liable to a fine of 10*l.* for each offence." The question was, whether the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 53d overruled the 42d rule, and whether in fact this was a special occasion, in which the appointed rules could be departed from. He contended that the not such an occasion. The safeguard provided by the 42d rule—that the hoistman should wait until he got the return signal before getting into the cage—was omitted, and for months prior to the accident it was not the custom during the night—the accident occurring about three o'clock in the morning—to wait for a signal. As far as he was able to see, and as far as the inspector could see, the 5

PATENT IMPROVED ORE WASHING & DRESSING MACHINES.

THE SANDYCROFT FOUNDRY & ENGINE WORKS CO. (LIMITED), NEAR CHESTER

LATE THE MOLD FOUNDRY CO. (ESTABLISHED 1838).

SOLE MAKERS IN GREAT BRITAIN.

HUNDREDS IN USE.

FULL PARTICULARS,
PHOTOGRAPHS, TESTIMONIALS, AND PRICES,
UPON APPLICATION.

Will supply Designs, and all the necessary Plant for laying out
Dressing Floors; also

MANUFACTURERS OF EVERY VARIETY OF

MINING MACHINERY

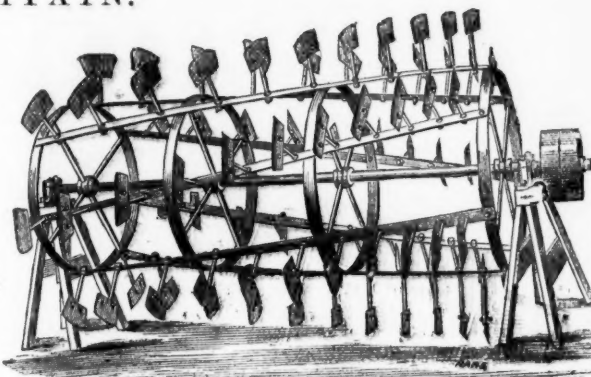
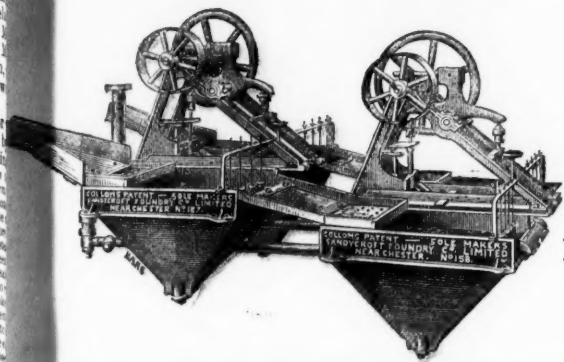
PUMPING & WINDING ENGINES,

PITWORK, CRUSHING MILLS,

ROLLS

OF PECULIARLY HARD AND TOUGH MIXTURE

&c., &c.



COLLON'S PATENT AUTOMATIC ORE WASHING MACHINE, working at the following and many other Lead, Copper, Blende, and Tin Mines:—Great L. Key, Cape Copper, Pontgibaud, Linares, Alabaster, West Tolgus, Lisburne, Minera Halvans, Snailbeach, &c.; and also at Messrs. Vivian and Sons' Swansea.

PATENT IMPELLER, OR KNIFE BUDDLE, in use at the following and many other Lead, Copper, Blende, and Tin Mines:—The Van, Roman Gravel, Tankerville, Ladywell, Lisburne, East Black Craig, Old Treburgett, Penhale & Barton, Bog, Linares, Fortuna, Alamillos, Minera Halvans, &c.

LONDON OFFICE: 6, QUEEN STREET PLACE, E.C.

BARROWS & STEWART, ENGINEERS, BANBURY,

MANUFACTURE

PORTABLE

Steam Engines

With Gear for

Winding,

Pumping, and Ore
crushing.

ALSO,

COMBINED MILLS

and ENGINES,

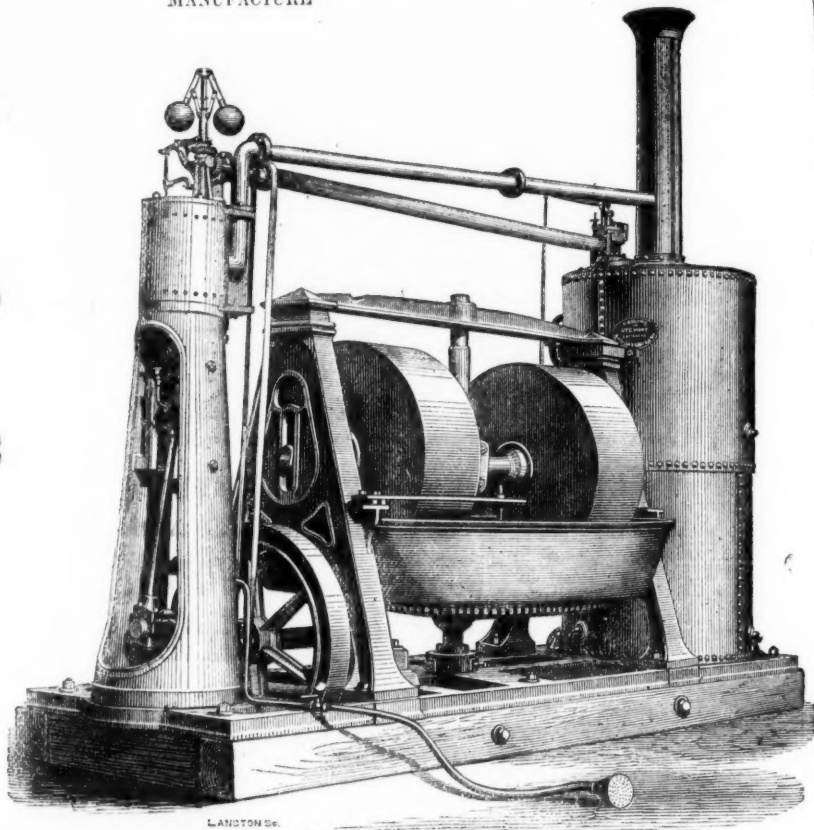
with or without

BOILERS,

for Grinding

Cinders, Sand,

Mortar, &c.



BORING AND SINKING.

WILLIAM COULSON AND SON

Are prepared to UNDERTAKE BORINGS for MINERAL EXPLORATION, either from the SURFACE or UNDERGROUND WORKINGS; BORINGS for WATER SUPPLIES or TUNNEL SOUNDINGS, &c., at fixed prices, according to the size of bore-hole required; also to EXAMINE and REPORT upon the BEST MEANS to SECURE DEFECTIVE TUBING.

Plans and specifications prepared for Shaft Tubing, Wedging Cries, Pumping, and General Sinking Arrangements.

Address: W. COULSON AND SON, SHAMROCK HOUSE, DURHAM.

J. WOOD ASTON AND CO., STOURBRIDGE

(WORKS AND OFFICES ADJOINING CRADLEY STATION),

Manufacturers of

CRANE, INCLINE, AND PIT CHAINS,

Also CHAIN CABLES, ANCHORS, and RIGGING CHAINS, IRON and STEEL SHOVELS, SPADES and FORKS, ANVILS, VICES, SCYTHES, HAY and CHAFF KNIVES, PICKS, HAMMERS, NAILS, RAILWAY and MINING TOOLS, FRYING PANS, BOWLS, LADLES, &c., &c.

Corb Winches, Pulley and Snatch Blocks, Screw and Lifting Jacks, Ship Knees, Forgings, and Use Iron of all descriptions, STOURBRIDGE FIRE BRICKS AND CLAY.

YEADON AND CO., COLLIERY & MINING ENGINEERS,

Manufacturers of WINDING, HAULING, and PUMPING ENGINES, EMMET'S PATENT BRICK MACHINE, Boilers and Fittings, Steam Piping, Donkey Pumps, Lift Pumps, Perforated Clay and Mortar Mills, Round and Flat Rope Pit-head Pulleys, Wrought-iron Head Gear, ROOFS and GIRDERS, Kibbles, ONE, TWO, and THREE-DECK CAGES, COAL TIPPING and SCREENING APPARATUS, VENTILATING FANS, TUBING, GIRDERS, PILLARS, POINT PLATES, and every description of Colliery and Mining Plant.

CROWN POINT FOUNDRY, LEEDS.

LONDON AGENTS, — HAUGHTON AND CO., No. 122, CANNON STREET, E.C.

PATENT

"INGERSOLL ROCK DRILL,"

LE GROS AND CO.,

60, Queen Victoria Street, London, E.C.

5, PARK PLACE, NEW YORK, U.S.A.



We claim 40 per cent. greater effective drilling power, and offer to compete with any machine of its class.

See following extracts from the reports of Judges in awarding Medals:—

"2. Its simple construction ensures durability, &c.

"4.—The steam or

air cushions at each end of cylinder effectually protect from injury.

"5. Its having an automatic feed, giving it a steady motion, &c.

"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working parts, &c.

"7. Its greater power is some FORTY PER CENT. in favour of the Ingersoll."

Medals awarded for several years in succession "For the reason that we adjudge it so important in its use and complete in its construction as to supplant every article previously used for accomplishing the same purpose."

Estimates given for Air Compressors and all kinds of Mining Machinery. Send for Illustrated Catalogues, Price Lists, Testimonials, &c., as above.

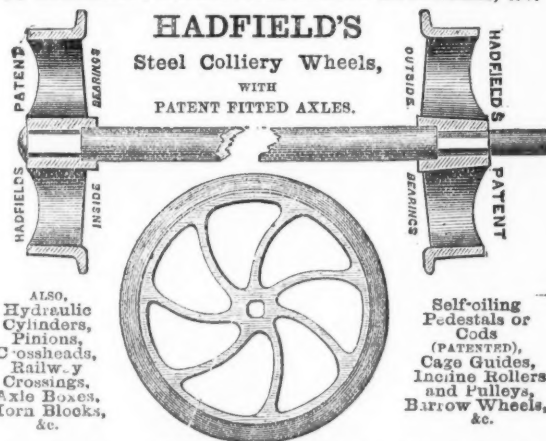
TO COLLIERY PROPRIETORS, MINING ENGINEERS, &c.

HADFIELD'S

Steel Colliery Wheels,

WITH

PATENT FITTED AXLES.



ALSO, Hydraulic Cylinders, Pinions, Crossheads, Railway Crossings, Axle Boxes, Horn Blocks, &c.

Self-acting Pedestals or Cods (PATENTED), Cage Guides, Incline Rollers and Pulleys, Barrow Wheels, &c.

Hadfield's Steel Foundry Company,

MANUFACTURERS OF EVERY DESCRIPTION OF

CRUCIBLE CAST STEEL CASTINGS.

ATTERCLIFFE, SHEFFIELD.

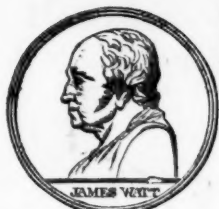
THE IRON AND COAL TRADES' REVIEW, ROYAL EXCHANGE, MIDDLESBOROUGH.

The IRON AND COAL TRADES' REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general.

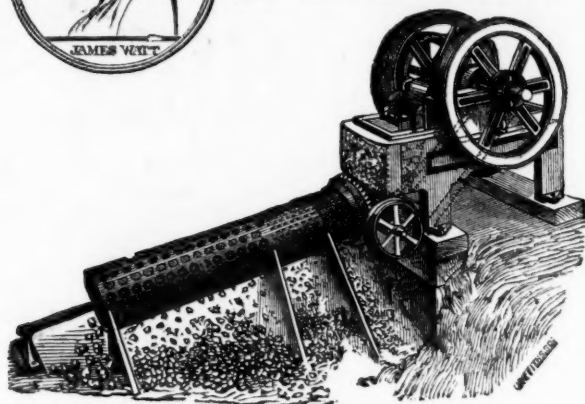
Offices of the Review: London: 7, Westminster Chambers, S.W.; Middlesborough-on-Tees: Royal Exchange; Newcastle-on-Tyne: 50, Grey-street.

LA HOUILLE (Weekly Journal) represents the IRON and COAL TRADES of FRANCE. Advertisements referring thereto, and subscriptions, 20s. per annum, post paid, received by the London Agents, EDWARD CASPER and Co., 40, Finsbury Circus, E.C.

BUYERS are CAUTIONED against Purchasing any Infringements of H.R.M.'s Numerous PATENTS



Ore Crushers, H. R. M.'s
New Patent Crushing Jaw
EXTENSIVELY USED
BY MINE OWNERS.

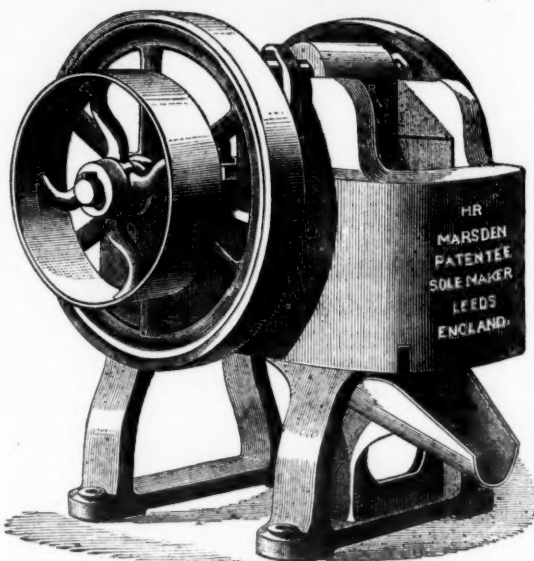


FIXED MACHINE AND SCREEN,
Specially designed and largely used for
Crushing Pyrites, Limestone, Cement, Coal, Rocks, &c.,
AT ALL THE PRINCIPAL WORKS IN THE KINGDOM.
Takes in 20 in. by 9 in., and is shown by TESTIMONIALS to be
breaking from 1000 to 1200 tons per day of 10 hours, at
THREE HALF-PENCE PER TON.
FEW WORKING PARTS.
SMALL WEAR AND TEAR.
FREEDOM FROM BREAKAGE.

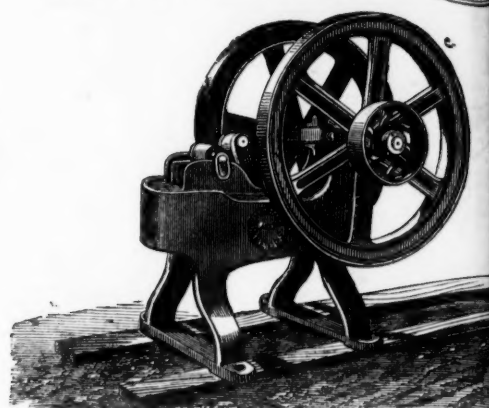
H. R. MARSDEN, LEEDS,
ENGINEER.

Mining Improvements
Revolving Picking
Table.

1150 NOW IN USE.



"The Machine is well designed, simple, but substantially made
and is capable of reducing any material to fine gravel, such as cop-
per ore, and is certainly preferable to the stamps in use for that
purpose."—Mining Journal.



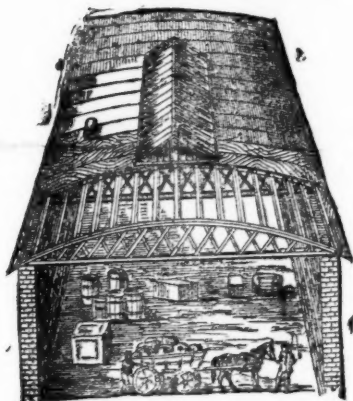
MACHINE FOR HAND OR STEAM POWER.
For making gravel for gentlemen's walks in parks and gardens
for grinding emery, flints, fossils, &c., for pulverising silver
and other ores; also gold quartz, and especially useful to
and metallurgists for sampling, as it is capable of pulverising
hardest material, and can be turned by one man with
REFERENCES TO ALL PARTS OF THE WORLD,
SIMPLICITY OF CONSTRUCTION. EXCELLENCE OF
ECONOMY OF POWER

THESE STONE BREAKERS AND ORE CRUSHERS ARE UNIVERSALLY PRONOUNCED THE ONLY PERFECT SUCCESS.

For Catalogues, Testimonials, &c., apply to the—

Sole Maker & Patentee, H. R. MARSDEN, SOHO FOUNDRY, LEEDS, ENGLAND

**M'TEAR AND CO.'S CIRCULAR
FELT ROOFING,**



FOR
GREAT ECONOMY
AND
CLEAR WIDE SPACE.
For particulars, estimates
and plans, address,—
M'TEAR & CO.,
ST. BENET CHAMBERS,
FENCHURCH STREET,
LONDON, E.C.;
4, PORTLAND STREET,
MANCHESTER;
OR
CORPORATION STREET,
BELFAST.
The above drawing shows the construction of this cheap and handsome roof, now
much used for covering factories, stores, sheds farm buildings, &c., the principal
of which are double bow and string girders of best pine timber, sheathed with 1/2 in
boards, supported on the girders by purlins running longitudinally, the whole
being covered with patent waterproof roofing felt. These roofs so combine light-
ness with strength that they can be constructed up to 100 ft. span without centre
supports, thus not only affording a clear wide space, but effecting a great saving
both in the cost of roof and uprights.
They can be made with or without top-lights, ventilators, &c. Felt roofs of any
description executed in accordance with plans. Prices for plain roofs from 30s. to
60s. per square, according to span, size, and situation.
Manufacturers of PATENT FELTED SHEATHING, for covering ships' bot-
toms under copper or zinc.
DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby
saving 25 per cent. in fuel by preventing the radiation of heat.
PATENT ASPHALTE ROOFING FELT, price 1d. per square foot.
Wholesale buyers and exporters allowed liberal discounts.
PATENT ROOFING VARNISH, in boxes from 3 gallons to any quantity re-
quired 8d. per gallon.



By a special method of preparation, this leather is made solid, perfectly close in
texture, and impermeable to water; it has, therefore, all the qualifications essen-
tial for pump buckets, and is the most durable material of which they can be made.
It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,
TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE
MANUFACTURERS,
LONG LANE, SOUTHWARK, LONDON
Prize Medals, 1851, 1855, 1862, for
MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

THE GREAT ADVERTISING MEDIUM FOR WALES.
THE SOUTH WALES EVENING TELEGRAM
(DAILY), and
SOUTH WALES GAZETTE
(WEEKLY), established 1857,
the largest and most widely circulated papers in Monmouthshire and South Wales
CHIEF OFFICES—NEWPORT, MON.; and at CARDIFF.

The "Evening Telegram" is published daily, the first edition at Three P.M., the
second edition at Five P.M. On Friday, the "Telegram" is combined with the
South Wales Weekly Gazette, and advertisements ordered for not less than six
consecutive insertions will be inserted at a uniform charge in both papers.
P. O. O. and cheques payable to Henry Russell Evans, 14, Commercial-street
Newport, Monmouthshire.

**MINING PROSPECTUSES AND ANNOUNCEMENTS OF
PUBLIC COMPANIES** should be inserted in the BARNSTAPLE TIMES,
published every Tuesday, and in the DEVON POST, published every Saturday, as
these papers circulate largely throughout Devon and Cornwall, where many thou-
sands of investors reside. Legal and Public Companies' advertisements, 6d. a line
each insertion; Trade and Auctions, 4d. a line; Wanted, &c., 20 words, 1s.
Published by J. B. Jones, Brompton-street, Barnstaple, Devon, to whom all orders
by post or telegraph should be sent.

BRYDON AND DAVIDSON'S ROCK DRILL

SELECTED BY THE BRITISH AND OTHER GOVERNMENTS.

Reduced prices of this Rock Drill (formerly called "Kainotomon"), Nos. 1 and 2, £32 and £34
SUBJECT TO DISCOUNT.

IMPROVED AIR COMPRESSORS.

Makers of Pumping and Winding Engines, Steam Hamm
Boilers, Pump Pipes, &c., &c. Castings of all kinds.

**BRYDON AND DAVIDSON, ENGINEERS
WHITEHAVEN.**

ORMEROD, GRIERSON, AND CO
ST. GEORGE'S IRONWORKS, MANCHESTER,
Engineers, Millwrights, & Boiler Makers

MANUFACTURERS OF

Stationary Steam Engines and Boilers for all purposes, Mill Gearing, Sugar Machinery, Cranes, T
Tables, and Railway Fixed Plant of all descriptions; also, the Diamond Rock Boring Company's P
—viz.: Compressed Air and Air-Compressing Engines, Prospecting Machines, Tunnelling Machines,
Shaft Sinking Machines.

HYDRAULIC PRESSES OF VARIOUS KINDS

Have the Largest Assortment in the Trade of

PATTERNS,
WITH MACHINE-CUT TEETH, OF

**SPUR WHEELS, BEVEL WHEELS
MITRE WHEELS,**

ALSO

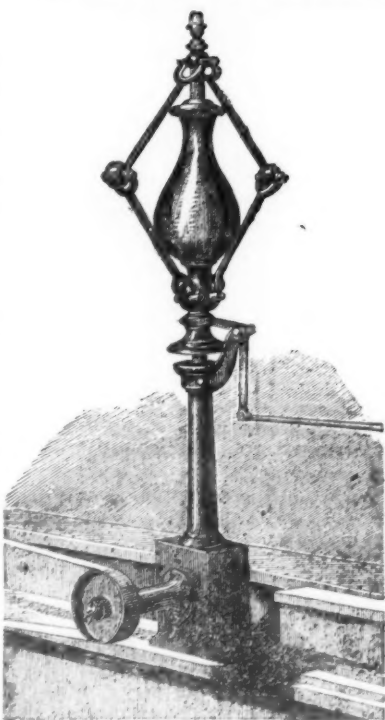
**FLY WHEELS.
DRIVING PULLIES & DRUMS**

CAN BE SUPPLIED BORED AND TURNED IF REQUIRED.

CATALOGUES ON APPLICATION.

LONDON OFFICES:

**No. 5, WESTMINSTER CHAMBER
VICTORIA STREET,
WESTMINSTER, S.W.**



Porter's Governor for Stationary Engines. Also Gover-
ners on the same principle adapted for Marine Engines.